

QST

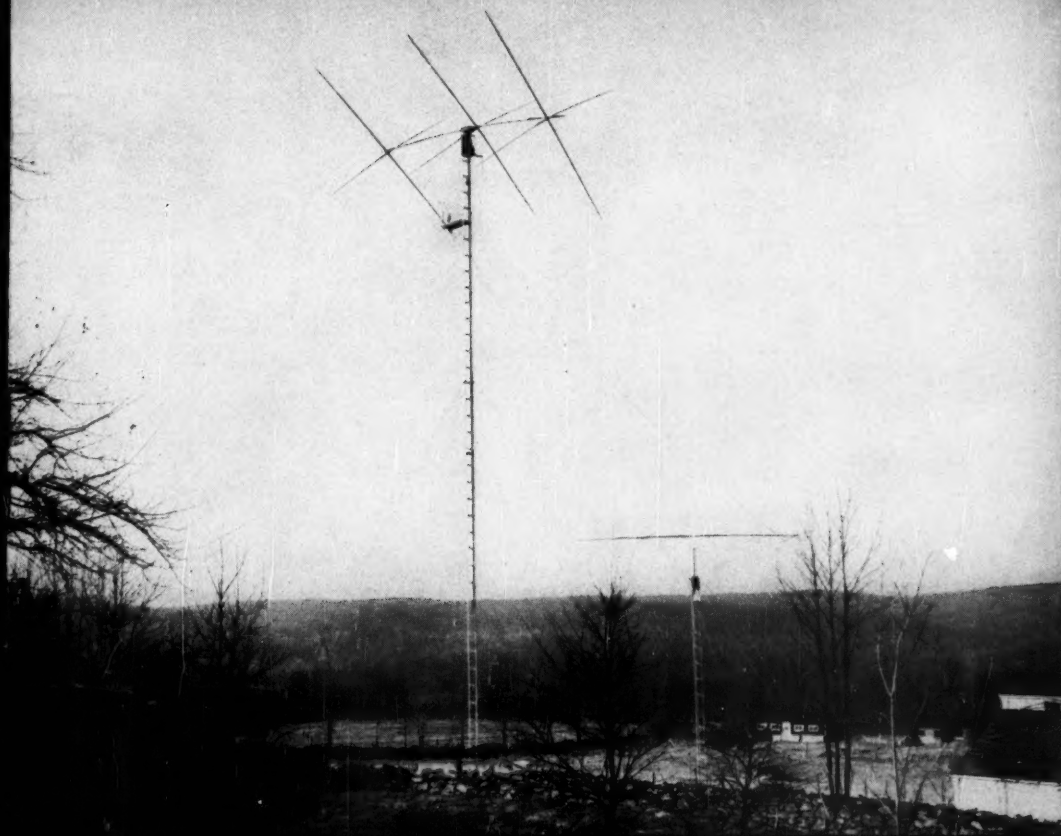
January, 1951

40 Cents

45c in Canada

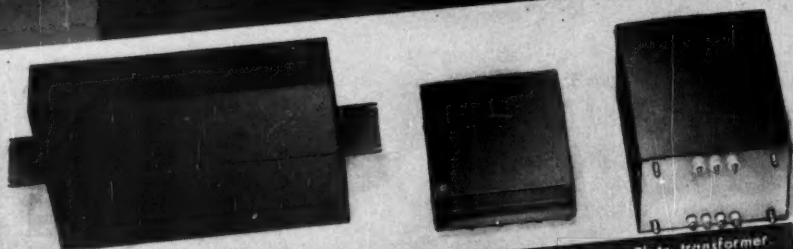
devoted entirely to

amateur radio

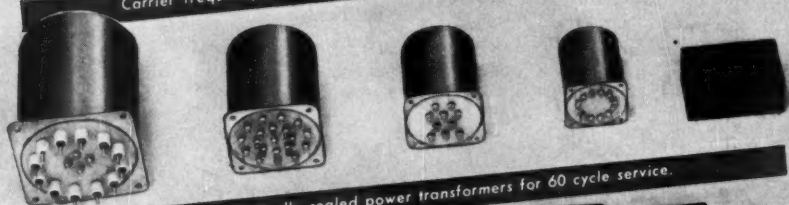


PUBLISHED BY THE AMERICAN RADIO RELAY LEAGUE

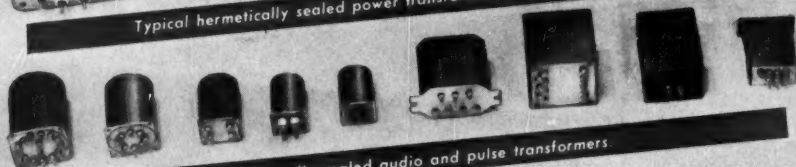
UTC was the largest supplier of transformer components in World War II. Present UTC production is on a similar basis. Illustrated below are a few of the thousand military types in UTC 1950 production.



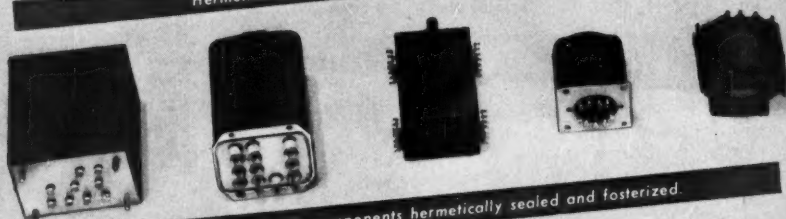
Carrier frequency filter Aircraft low frequency filter Plate transformer



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Miniaturized audio units, magnetic amplifiers, etc.

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Get it easily, get it cleanly
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GL-592

Typical Operation, Class C
Telephony, ICAS

Filament voltage	10 v
Filament current	5 amp
Plate voltage	2,800 v
current	250 ma
input	700 w
dissipation	225 w
Frequency at max ratings	150 mc

ROBUST performance—a BIG signal that commands attention—these are one chapter of the GL-592 story. Here's a tube, usable up to 150 mc at full ratings, which will take 700 w phone input. A pair will handle a cool-as-January kilowatt.

Smoothly, cleanly, too, with few parasitics! For along with power goes ease of tube installation and operation. Look at the GL-592 to learn why. Everywhere you'll observe short, low-inductance leads—indispensable in h-f work.

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Dick Bellew, WØBFY, Clyde Hendrix, WØHBG, and Art Collins, WØCXX, watch Leo Wilkins, WØAUQ, finish assembling the first Collins 75A-2 receiver to leave the assembly line. Hendrix, perennial purchaser of Serial No. 1 models of Collins ham equipment, again demonstrated his complete confidence by ordering sight-unseen, many months ago. He drove from Clinton, Iowa, to the Collins factory to take delivery.



For the best in amateur radio, it's . . .



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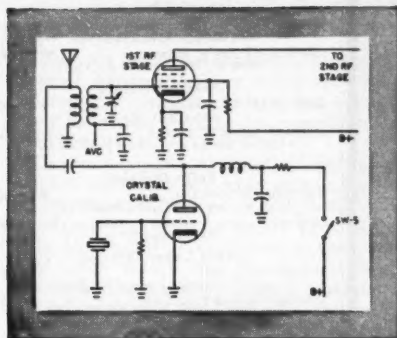
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Reports Invited. All amateurs, especially League members, are invited to report station activities on the first of each month (for preceding month) direct to the SCM, the administrative ARRL official elected by members in each Section. Radio Club reports are also desired by SCMs for inclusion in QST. **All ARRL Field Organization appointments are now available to League members.** These include ORS, OES, OPS, OO and OBS. Also, where vacancies exist SCMs desire applications for SEC, EC, RM, and PAM. In addition to station and leadership appointments for Members, *all amateurs* in the United States and Canada are invited to join the ARRL Emergency Corps (ask for Form 7).

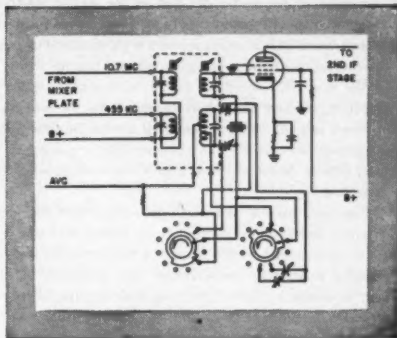
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the hallicrafters co.

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THE AMERICAN RADIO RELAY LEAGUE, INC.

is a noncommercial association of radio amateurs, bonded for the promotion of interest in amateur radio communication and experimentation, for the relaying of messages by radio, for the advancement of the radio art and of the public welfare, for the representation of the radio amateur in legislative matters, and for the maintenance of fraternalism and a high standard of conduct.

It is an incorporated association without capital stock, chartered under the laws of Connecticut. Its affairs are governed by a Board of Directors, elected every two years by the general membership. The officers are elected or appointed by the Directors. The League is noncommercial and no one commercially engaged in the manufacture, sale or rental of radio apparatus is eligible to membership on its board.

"Of, by and for the amateur," it numbers within its ranks practically every worth-while amateur in the nation and has a history of glorious achievement as the standard-bearer in amateur affairs.

Inquiries regarding membership are solicited. A bona fide interest in amateur radio is the only essential qualification; ownership of a transmitting station and knowledge of the code are not prerequisites, although full voting membership is granted only to licensed amateurs.

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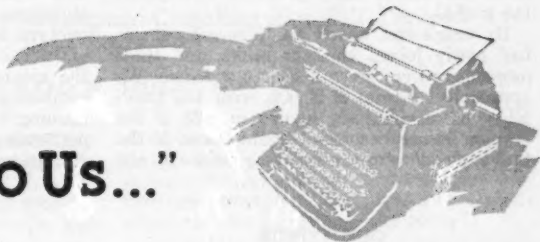
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"It Seems to Us..."



THE YEAR IN REVIEW

The year 1950 is noteworthy not only as the close of the half century which encompasses amateur radio's entire history, but one which itself has made considerable contributions to that history.

Of prime importance was the rapid development of the feeling in government and military circles, since its birth as an outgrowth of War II experience, that no longer need amateur radio be completely shut down in the event of war—but rather that its potentialities in service to the country, under a suitable plan, far outweigh the disadvantages, from a military standpoint, of a communications system that even in wartime is only partially controlled and censored. It is a modern view, and one that could only have been developed in a true democracy, in a nation not a military state. As a result, considerable progress was being achieved by year-end in correlation of aims between the military, the National Security Resources Board, and the ARRL speaking for the amateur service.

The developing opportunity was an awesome one, a real challenge to our resourcefulness. Amateurs throughout the country stepped up their efforts to meet it under overall plans of the League's Amateur Radio Emergency Corps. Six thousand persons, 1000 more than in 1949, participated in the 1950 Field Day test of emergency gear; the Simulated Emergency Test showed widespread activity, greater by half again than in 1949. And under actual fire, amateur preparation for disaster communications was proved again and again: in the Midwest ice storms, in the Manitoba floods and the California floods, and in the destructive storm which hit the entire East in late November, as well as in dozens of minor incidents. Mobile units—vital links in emergency plans—grew to considerable numbers, further strengthening amateur radio's ability to serve.

TVI remained the major technical problem. Yet, even at the beginning of the year it had been adequately demonstrated that the problem could be solved. Thus encouraged, more

and more amateurs delved behind panels and chassis, revamped, rebuilt, and achieved or approached success. In general it was possible to say, at year's end, that if an amateur was off the air because of TVI, it was largely because he hadn't spent the necessary time to bring his rig up to the requirements of 1950 design and construction standards. In other technical fields, further improvements in selectivity for both voice and c.w. reception, plus increased interest in s.s.b. techniques, bid fair to solve the stations-per-kilocycle problem. The electronic key boys came several steps closer to perfection, while new modulation systems and use of speech clippers increased 'phone's efficiency.

Bands were less crowded, probably due to three fundamental causes: amateurs still off the air from TVI problems; the inevitable decline of interest from its immediate postwar surge; and the downward trend of the sunspot cycle with resultant poorer band conditions. The latter conceivably was an asset, loosening the grip of DX and ragchewing so that more effort might be applied to emergency communications planning.

Regulationwise, it was a quiet year, though one of uncertainty. The Extraordinary Administrative Radio Conference, which amateur radio had viewed with mixed emotions, was postponed until 1951, this having the effect of further putting off the day when the Atlantic City table of allocations below 27.5 Mc. will take effect. FCC's January revision of early proposals in Docket 9295 met with almost-but-not-quite general approval, the remaining differences being argued before the Commission *en banc* in June. As the year drew to a close, color television and other pressing FCC matters were still keeping our Docket in the background. A third-party message agreement was concluded with Ecuador, and traffic-minded amateurs awaited the ratification of the Washington (1949) regulations which would extend message-handling privileges further throughout the hemisphere. The proposed Disaster Communications Service, primarily to link emergency communications

plans of all services, was welcomed by amateurs as a further tool in disaster planning. An IARU Congress in Paris during May strengthened the ties of amateur radio throughout the world.

By year's end, nearly six thousand persons had newly joined amateur ranks, and these newcomers were given a hearty welcome. We approached a total of 90,000, with the possibility of reaching six figures in 1951 if the Novice license becomes a reality, and if the first expirations of the five-year license do not

cut too heavily into existing numbers. In 1951 amateur radio's many fields — such as emergency communications preparation, propagation studies, microwave investigation, new techniques such as single-sideband and radio-teletype, television, and even the old stand-bys of traffic-handling, DX and ragchewing — offer the greatest opportunity in our history for combining the pleasure of operating, the training in electronics, and the satisfaction of performing in the public interest, convenience and necessity.

OUR COVER

No, it isn't a TV antenna that has been fed some super hormones — it's the new 14-Mc. beam at W1ATE, 75 feet in the air above considerable Connecticut landscape. Patterned after the beam described by W2NNT in June, 1949, *QST*, it was adjusted with the help of the sensitive field-strength meter described this month. How well does it work? Just ask anyone who has heard W1ATE on 14 Mc. within the past three months.

FEED-BACK

In the "Versatile Power Supply" described on page 53 of November *QST*, the ratings of the power transformer are listed correctly below Fig. 1 but are incorrectly stated as 1000 volts each side of center tap in the text. W9DD, who spotted this, also points out that the alternative connections described in the last paragraph of this item can be used only when the supply is operated in Condition 3, and that the words "instead of to the similar junction at V_2 , V_4 ," should be deleted from the text. Thanks to W9DD and apologies to the author, W9CO.

Strays

Those hams who make up their QSLs on Government postcards may be interested in the comparatively new air mail postcards, available at four cents each. Add a few of them to the pile the next time you have QSLs printed — they may come in handy.

CONSTITUTION & BY-LAWS AND OFFICERS' REPORTS AVAILABLE TO MEMBERS

Each year the officers of the League make comprehensive written reports to the directors. The Board has made these reports available to interested members. The cost price is 75 cents per copy (1949 report), postpaid. A copy of the Constitution & By-Laws will be sent to any member free upon request. Address the Secretary at West Hartford.



January 1926

... The Fourth National Radio Conference has adjourned with the recommendation that there be no changes in the limits of the amateur bands. Other recommendations include creation of a 'phone band from 3500 to 3800 kc. and prohibition of spark below 200 meters. ARRL was represented at the conference by President Hiram Percy Maxim, Vice-President Charles H. Stewart, and Secretary K. B. Warner. Secretary of Commerce Herbert Hoover presided at the sessions and paid warm tribute to the achievements of amateurs.

... Practical crystal-controlled transmitters are described by William Justice Lee, 4XE, and Assistant Technical Editor John M. Clayton, 1DQ.

... Tips for operating UV201 and UV202 tubes on wavelengths as low as 1.5 meters are presented by Harry Lyman, 6CNC.

... Lieut. F. H. Schnell, USNR, is back at his desk at ARRL Hq. after a most successful series of short-wave tests while with the U. S. fleet on its Pacific cruise. In commending Lieut. Schnell's work, Admiral E. W. Eberle, chief of naval operations, states, "... largely through his efforts high-frequency radio is now definitely in the Navy, both ashore and afloat."

... Amateurs are urged to devote more time to experimentation in the promising field of "beamed" transmissions on short waves.

... F. E. Handy is preparing a new ARRL publication for beginners, to be known as a "Handbook."

... There's many a choice bit of foreign DX to be worked by listening outside the bands for replies to CQs, report the experts.

... The "Tone Meter" of L. J. Wolf, 9DKT, is recommended as a practical device for measuring percentage of ripple in power supplies.

... Newly-elected ARRL directors are Dr. Eugene C. Woodruff, 8CMP-8CIK, Atlantic Division, and Porter H. Quinby, 9DXY, Midwest Division.

Silent Keys

It is with deep regret that we record the passing of these amateurs:

W1ADR, Herman E. Nutt, Derry, N. H.
W1HQD, Gustave L. Behm, Middletown, Conn.
W6ZXU, Ralph A. Shugart, Los Angeles, Calif.
W7BVR, Warren H. Curry, Portland, Ore.
W6FAM, Samuel C. Wallace, Clarks, Nebr.
OK1RF, Frantisek Cerveny, Prague
VE2HE, John D. Woodlock, Iberville, Que.
VP9S, William A. Shields, Devonshire

A Single-Control Low-Power Transmitter

Another Application of Bandpass Coupling in a TVI-Treated Four-Band Rig

BY RICHARD M. SMITH,* W1FTX

BANDPASS COUPLING seems to be coming into greater popularity at the present time, and rightfully so. In these days of TVI, it has been found that inductive coupling between the stages of a transmitter is highly desirable, and fixed-tuned bandpass couplers meet this requirement adequately without adding to the number of tuning controls. Thus we are able to have both operating convenience and the advantages of inductive coupling at the same time.

The transmitter described below is designed to be used with a low-cost 400-volt 150-ma. power supply, and to operate at 35-40 watts input in the 80-, 40-, 20-, and 10-meter amateur bands. Its circuit, shown in Fig. 1, makes use of a 6AG7 crystal oscillator driving an 807 amplifier, a popular low-power combination, and embodies a simple bandpass coupler between the two stages. The coupler, comprising C_6L_1 and C_6L_2 , is built in a standard 5-prong coil form, thus permitting separate couplers to be used for multiband coverage. The oscillator circuit is arranged so that a VFO unit may be substituted for the crystal, if desired. As additional precautions, the d.c. power leads and key leads are filtered to reduce the possibility of TVI from harmonic radiation. Keying is accomplished by closing and opening the cathode circuits of both stages simultaneously, thus eliminating the need for either fixed bias or clamp-tube protection for the 807 stage.

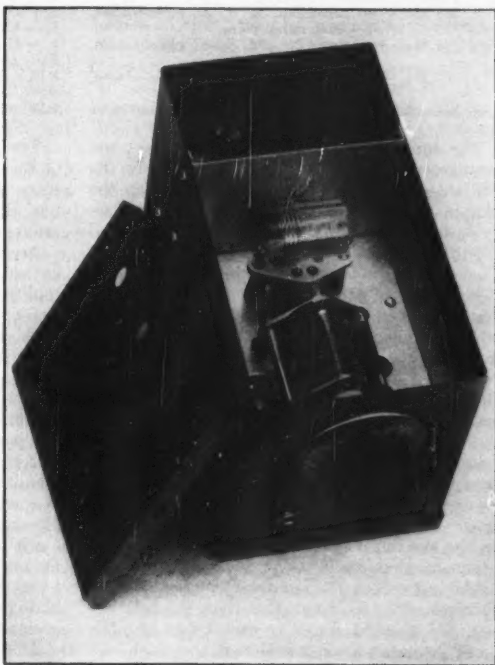
Construction

The transmitter is built in a standard $5 \times 9 \times 6$ -inch steel utility box. Most of the parts are mounted on an aluminum plate cut to fit the inside of the box and supported from its sides by $\frac{1}{2}$ -inch angle brackets as shown in the bottom view of the unit. The plate is mounted $3\frac{3}{4}$ inches above the bottom of the box. Two ventilating holes are cut through the plate near the front

of the box, and additional vents are punched through the top and bottom covers of the box as shown in the photographs. These holes permit air to circulate through the box, yet do not materially reduce the effectiveness of the shielding.

The sockets for the 6AG7 and for the plug-in bandpass coupler are mounted in line, $1\frac{1}{4}$ inches from the rear of the aluminum plate. The socket for the 807 is mounted in a Millen bracket assembly (80009) trimmed down to fit "below decks" in a horizontal position. The bracket assembly is placed so that the grid terminal on the socket is $3\frac{3}{4}$ inches from the rear of the box, allowing adequate space for mounting the small parts in the oscillator circuit, yet retaining the desired short r.f. leads.

An octal socket used to hold the crystal and to connect a VFO, an octal plug for power input connections, and a coaxial output connector are mounted at the rear of the box, centered $1\frac{1}{4}$ inches below the bottom edge. The key jack and a panel light are mounted on the front, spaced $1\frac{1}{2}$ inches above the bottom edge.



* Technical Assistant, QST.

Top view of the transmitter with cover removed. The tank circuit for the 807 amplifier occupies the front compartment, with the 6AG7 oscillator and the plug-in bandpass coupler at the rear. Ventilation for the tubes is obtained through holes punched in the top, bottom, and the interior mounting plate which supports the various component parts.

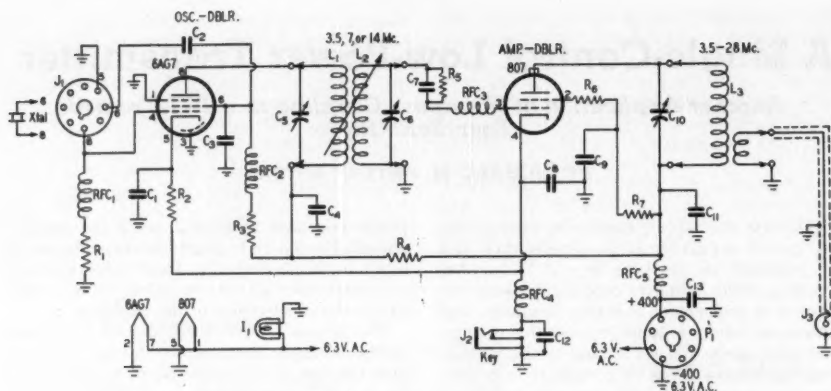


Fig. 1—Circuit diagram of a two-stage four-band transmitter utilizing bandpass coupling and including TVI-reducing filters.

- C₁, C₈, C₉—0.01- μ fd. disc ceramic.
 C₂—0.005- μ fd. disc ceramic.
 C₃—25- μ fd. mica.
 C₄, C₁₂, C₁₃—0.001- μ fd. disc ceramic.
 C₅, C₆—3–30 μ fd. air-dielectric trimmers (Phillips).
 C₇—100- μ fd. mica.
 C₁₀—300- μ fd. transmitting variable (National TMS-300).
 C₁₁—0.001- μ fd. mica, 1200 v. d.c. working.
 R₁—47,000 ohms, $\frac{1}{2}$ watt.
 R₂—330 ohms, 1 watt.
 R₃—47,000 ohms, 1 watt.
 R₄—10,000 ohms, 5 watts, wire-wound.
 R₅—22,000 ohms, 1 watt.
 R₆—47 ohms, $\frac{1}{2}$ -watt carbon.
 R₇—20,000 ohms, 5 watts, wire-wound.
 L₁—Primary, bandpass coupler.
 3.5 Mc.—40 turns No. 30 d.s.c., close-wound, $\frac{1}{2}$ -inch diam. form.
 7 Mc.—16 turns No. 26, d.s.c., close-wound, $\frac{1}{2}$ -inch diam. form.
 14 Mc.—9 turns No. 20 d.s.c., close-wound, $\frac{1}{2}$ -inch diam. form.
 L₂—Secondary, bandpass coupler. Wound on same

- form as L₁, spaced as indicated.
 3.5 Mc.—35 turns No. 30 d.s.c., close-wound, $\frac{1}{2}$ -inch separation from L₁.
 7 Mc.—15 turns No. 26 d.s.c., close-wound, 9/16-inch separation from L₁.
 14 Mc.—9 turns No. 20 d.s.c., close-wound, $\frac{1}{2}$ -inch separation from L₁.
 I₃—Plate coil for 807. (All are National AR-17 series).
 3.5 Mc.—AR-17-40E. (28 turns No. 18, 1 9/16 inches long, $\frac{1}{4}$ -inch diam.)
 7 Mc.—AR-17-20E. (14 turns No. 16, 1 1/4 inches long, $\frac{1}{4}$ -inch diam.)
 14 Mc.—AR-17-10E. (8 turns No. 16, 1 3/8 inches long, $\frac{1}{4}$ -inch diam.)
 28 Mc.—AR-17-6E. (4 turns No. 12, 2 inches long, $\frac{3}{8}$ -inch diam.)
 I₁—6.3-volt pilot lamp.
 J₁—Octal socket, ceramic.
 J₂—Closed-circuit jack.
 J₃—Coaxial connector, female.
 P₁—Octal plug, panel mounting.
 RFC₁, RFC₂—2.5-mh. r.f. choke (National R-100-S).
 RFC₃—1.8- μ h. r.f. choke (Ohmite Z-144).
 RFC₄, RFC₅—7- μ h. r.f. choke (Ohmite Z-50).

The top view of the transmitter shows the arrangement of the plate tank circuit of the 807 stage. A six-prong ceramic socket for the plug-in plate coils is supported above the deck by $\frac{3}{4}$ -inch ceramic stand-off insulators (National GS-10) $\frac{4}{8}$ inches behind the front of the box. The tuning condenser is mounted on ceramic button-type insulators (National XS-6) immediately in front of the coil socket. The rotor shaft of this condenser must be insulated from the front panel because it carries the full plate-supply voltage. The shaft is $1\frac{1}{2}$ inches above the aluminum plate when mounted as described, and passes through the front of the box 2 inches below the top. The two leads that connect the condenser to the tube and to the plate by-pass condenser pass through the mounting plate in polystyrene through-bushings (National TPB).

An aluminum shield partition $3\frac{3}{8}$ inches high divides the top portion of the box into two compartments as shown in the photographs, providing shielding between the bandpass coupler and the plate coil of the 807. Note that these two coils are mounted at right angles to each other as additional insurance against feed-back.

The coaxial output link runs from the prongs of the coil socket through a $\frac{1}{4}$ -inch hole in the plate to the output connector on the rear of the box. Both ends of the shield braid of this link are grounded to the chassis.

Arrangement of the wiring within the unit is critical at only a few points. The components used to filter the d.c. leads (RFC₄, RFC₅, C₁₂, and C₁₃) are mounted as close to the point at which the leads pass through the shield enclosure as possible, with very short leads from the condensers to ground. Parasitic-suppressing choke RFC₃ is mounted right at the grid terminal of the 807 socket, and R₆, which also has a part in eliminating parasitics, is mounted between the screen-grid terminal and a small tie-point bolted to the mounting bracket. Screen by-pass condenser C₉ is connected from this tie-point to the cathode pin on the tube socket. Plate by-pass condenser C₁₁ is placed behind the 807, between it and the mounting plate which serves as ground. The lead from the "high" side of this condenser to the plate tank circuit passes through one of the polystyrene bushings mentioned above.

All heater and d.c. wiring is made with shielded

wire, with the braid grounded at each end to provide additional by-passing of high-frequency harmonics that might cause TVI. The screen dropping resistor R_7 , and R_8 which reduces the supply voltage to the proper level for the oscillator, are mounted on tie-points near the octal plug used to bring power into the unit.

The Bandpass Coupler

The bandpass coupler contains two parallel-resonant circuits closely coupled to one another. One of these circuits, L_1C_5 , serves as the tuned plate circuit for the 6AG7 oscillator, while the other, L_2C_6 , is used as the tuned grid circuit for the 807 amplifier. Being wound on the same form and separated by only a fraction of an inch, the two coils are actually overcoupled. Because of this overcoupling, the desired tuning characteristic, illustrated in Fig. 4, is obtained. Once the coupler is adjusted properly it is no longer neces-

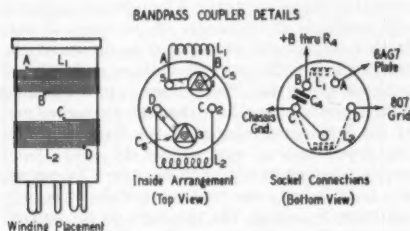


Fig. 2—Details of the bandpass couplers. The trimmer condensers are soldered inside the coil form, as described in the text, making a simple, compact plug-in assembly that needs adjustment only once.

sary to tune either of the two circuits involved when frequency is changed within a given band, and excitation to the grid of the 807 remains substantially flat across the entire band, but drops off sharply outside the band edges.

In general, best results in bandpass circuits are obtained when the LC ratio is made as high as possible. At the frequencies involved here, only a few micromicrofarads in addition to the stray and tube capacities is wanted. For that reason, small 3–30 $\mu\mu\text{f}$. air-dielectric trimmers are used for C_5 and C_6 . These Phillips trimmers lend themselves admirably to the type of construction used, because the "rotor" connection to the condenser consists of a short, stiff lead projecting from the bottom. This wire is small enough to be slipped down inside the prong of a National XR-5 plug-in coil form along with the end of the coil wire. This provides both the desired electrical connection and a firm mechanical support for the condenser. The trimmers are small enough so that two may be mounted side by side inside the coil form, making a neat, compact assembly as shown in the photograph and in Fig. 3.

It is important to note the arrangement of the windings on the coil form. The grounded (for r.f.) ends of the two coils are in the center of the form, with the "hot" ends at the extremes. This provides adequate inductive coupling with a mini-

mum of capacity coupling, a highly desirable situation when minimum harmonic transfer is sought.

The "rotor" connection on the trimmers should be used as the grounded side of the circuit, with the stator tabs serving as the other side. By proper positioning of the trimmers within the form before soldering, the stator tabs can be oriented to rest immediately above the prong of the coil form to which they are to be connected. It is then possible to make the connection by merely pushing a wire through the hole in the tab (from inside the coil form) and then through the prong. There is enough room inside the form to permit the tip of a small 60-watt soldering iron to be touched to the tabs after the wires have been pushed through.

The windings of the coupler are fairly critical as to inductance, and very critical as to spacing between windings. If you plan to use a VFO as the frequency control unit for this transmitter it will pay to leave the windings a little looser than usual so that "fine" adjustment of the coupling may be made after winding by slipping a turn or two of one coil closer to the other. For crystal-controlled operation the situation is less critical, because it is usually possible to obtain sufficient excitation on any one of several crystal frequencies by adjustment of the trimmers alone.

Three couplers are included, and with these it is possible to use the transmitter in four amateur bands. One coupler is designed to provide excitation across the entire 3.5–4 Mc. band, another for the 7–7.3 Mc. band, and the third from 14 to 14.9 Mc. This latter range is considerably in excess of what would be required for coverage of the 14-Mc. band alone. The extension at the high-frequency end of the range is necessary if the transmitter is to operate in the 28-Mc. band, because for output in this range, the 807 stage must be operated as a doubler from the 14-Mc. excitation supplied to its grid circuit.

In crystal-controlled operation, 3.5-Mc. fundamental crystals may be used for output in the 3.5- and 7-Mc. bands, and 7-Mc. crystals for output in the 7-, 14-, and 28-Mc. bands. In instances where a VFO is used to replace the crystal, the 6AG7 stage should be used as a frequency doubler to eliminate the possibility of oscillation. Regardless of the type of frequency control used, the bandpass couplers remain the same in both construction and adjustment. A VFO may be connected as shown in Fig. 3.

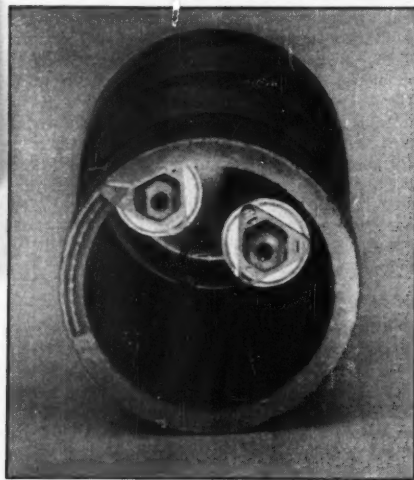
Adjustment and Operation

The only adjustments required, other than those used in normal operation, are of the bandpass couplers and of the oscillator keying characteristics. As mentioned above, if crystal-controlled operation is planned, adjustment of the bandpass couplers can be done simply by adjustment of the trimmers to provide adequate excitation with whatever crystals are to be used. If crystals for the extreme ends of a given band and for the center of the band are available, some semblance of the true bandpass characteristic can

be achieved, but it is unnecessary. If a VFO is to be used, it is necessary to adjust the couplers to provide substantially flat excitation across each band. This type of adjustment takes a bit more time than the former, however, but pays off in operating convenience in the long run. It is described in detail later, while the following paragraphs describe the simpler procedure used for crystal-controlled operation.

To adjust for crystal-controlled operation, plug in a crystal that will produce output somewhere near the center of the 3.5-Mc. band, put the 3.5-Mc. coupler in the coil socket, and the 3.5-Mc. tank coil in the 807 stage. Disconnect the d.c. lead that supplies screen voltage to the 807, leaving the screen by-pass connected, and insert a d.c. milliammeter capable of reading up to 50 ma. in the common plate and screen supply lead of the oscillator stage. Connect a d.c. voltmeter through an r.f. choke between the grid terminal on the 807 socket and ground. The r.f. choke should be connected right at the grid terminal. Apply heater voltage, and 400 volts d.c. to the high-voltage terminal. The oscillator should draw about 20 to 25 ma. combined plate and screen current before the coupler is adjusted. Turn trimmers C_5 and C_6 to develop maximum bias voltage at the 807 grid as indicated by the voltmeter. At least -45 volts should be obtained, and in all probability it will be more. It is necessary to work back and forth between the two trimmer condensers because when C_6 is tuned, the primary is somewhat detuned and must be re-peaked. Current in the 6AG7 stage will drop to between 10 and 15 ma. when the trimmers are properly adjusted.

After maximum grid voltage is obtained, turn off the plate supply, and replace the crystal with one near the low-frequency end of the band.



Close-up of the interior of one of the bandpass couplers. The two trimmer condensers are connected as shown in Fig. 2.

CABLE CONNECTIONS FOR VFO OPERATION

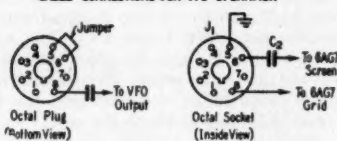


Fig. 3—Method of substituting a VFO for the crystal. An octal plug, wired as shown, is inserted in the crystal socket. The jumper between Pins 5 and 6 serves to ground one side of C_2 , thereby changing it from a coupling condenser to a screen by-pass condenser. Excitation from the VFO is applied to the grid of the 6AG7 through Pin 8 of the plug, which is connected to the center conductor of a short length of coaxial cable. The condenser shown at Pin 8 should be mounted inside the VFO, serving as a d.c. blocking condenser. Its size may be anything from 100 μ fd. to 0.001 μ fd., with the smaller value being preferred.

Check the grid voltage, and if it is less than before, slight readjustment of C_5 should rectify the trouble. If C_5 is readjusted, return to the first crystal to make sure that adequate excitation is still available at the center of the band. If not, further adjustment is required to arrive at the point where sufficient grid voltage is developed with either crystal. The process is now repeated with a crystal ground for the high-frequency end of the band (assuming that you have one, and that you want to work across the entire band without having to retune the coupler). Of course, if you have only one or two crystals, it is only necessary to adjust the trimmers to get enough excitation from them, regardless of frequency.

A similar process is used to adjust the couplers for the other bands.

Once the bandpass couplers have been adjusted, reconnect the d.c. screen lead to the 807 stage, and plug a milliammeter capable of reading up to 200 ma. in the key jack where it will read the total current flowing in both stages. The reading obtained previously for the 6AG7 stage is subtracted from the total to determine the current flowing in the 807. Plug the desired coil in the 807 plate circuit, and the correct crystal-coupler combination in the oscillator stage. Connect a 25-watt lamp bulb to the output terminal to serve as a dummy load while the 807 stage is tested.

Apply plate voltage and resonate the 807 tank circuit by tuning C_{10} . With the lamp load, the off-resonance plate current will be very high, in the neighborhood of 200 ma., dipping to 100 ma. or less at resonance. If it is not possible to load the 807 stage so that the total current indication is 100 ma. or slightly over, disconnect the lamp from the output terminal and tap it across a few turns of the tank coil. This should be done with the power off, of course! By changing the number of turns across which the lamp is tapped and re-resonating the plate circuit, it should be possible to obtain full loading.

The meter may be removed from the key jack now, and a key inserted. Check the keying characteristic by listening to the signal, or a harmonic of it, in the receiver with the gain turned down as far as possible and the antenna disconnected.

With the circuit constants shown and active crystals, good keying should be obtained with both 3.5- and 7-Mc. crystals. If, however, the keying is sluggish, and it sounds as though the crystal doesn't start oscillating readily, the size of feed-back condenser C_3 should be changed in 25- μ fd. steps until good keying is obtained.

To test the transmitter for parasitic oscillations, apply full power with no load connected to the output terminal. With a milliammeter plugged in the key jack, pull the crystal out of its socket, and watch the meter. Current should jump to a very high value, and should remain steady as C_{10} is tuned through its range. Do not leave power on for more than a few seconds under these conditions, as the plate dissipation of the 807 will be excessive. If plate current does not soar when the crystal is removed, or if it changes at all as C_{10} is tuned, the 807 stage is oscillating. Check with a wavemeter to see if the oscillation is in the v.h.f. range or near the operating frequency. If the latter is true, connect the lamp load as before and repeat the previous check. It is probable that the presence of the lamp load will kill the tendency to oscillate, and the transmitter may then be considered as stable. If a v.h.f. parasitic is present in spite of the circuit precautions included in the design, check to make sure that RFC_3 and R_6 are wired as called for in the diagram. If the parasitic persists, it may be necessary to install a small r.f. choke, similar in size to RFC_3 , in the plate lead to the 807. Once stabilized the transmitter may be put into active service on the air, using an antenna coupler as described in any recent edition of *The Radio Amateur's Handbook*.

Bandpass Adjustment

Now to return to the adjustment of the bandpass couplers for VFO operation. The desired result is a response curve that just brackets the amateur band, with output sharply reduced beyond the band edges. A sample curve plotted from the unit described here is shown in Fig. 4. To obtain this type of response the bandpass couplers must be adjusted carefully both as to the degree of coupling between coils and the LC ratio used in the two tuned circuits. In addition to the desired response curve, two examples of what can

happen when the couplers are incorrectly adjusted are shown in Fig. 4. If the coupling between the two coils is too loose, a single sharp peak similar to that obtained with the usual single-circuit interstage coupling results. If the coupling is too tight, the response curve will be double-humped, with a deep valley between the humps. Depending on how the trimmer condensers are set, one peak may be higher than another, and the valley may be displaced to one side or another.

The equipment needed to perform the adjustment for VFO operation is the following: (1) a VFO capable of about 1-watt output one band lower in frequency than that of the coupler; (2) a low-range d.c. milliammeter capable of reading up to 5 or 10 ma.; (3) a d.c. voltmeter connected as described in a previous paragraph to read bias voltage developed in the 807 stage; (4) a calibrated receiver. In addition, some means of keeping the output of the VFO at a constant level is also needed. If the VFO has a tuned output circuit, this can be done by merely detuning it slightly when needed.

The process described will permit adjustment of any and all of the couplers, although for purposes of simplicity reference is made only to adjustment of the 3.5-4 Mc. unit. Set up the VFO so that it can deliver output anywhere between 1.7 and 2 Mc. First set the frequency to the middle of the desired range, and adjust the output to produce about 1-ma. grid current in the 6AG7 stage, as indicated on the low-range milliammeter. This will not necessarily be the current developed in this stage in actual operation, but it is sufficient to produce the desired indication of grid current in the 807 stage. Keeping the input to the 6AG7 at this level insures against overdriving the stage, which would result in misleading indications.

Next adjust trimmers C_5 and C_6 to produce maximum grid current as indicated by the bias developed in the 807 stage. One adjustment will react somewhat on the other, so it is necessary to juggle back and forth from one trimmer to the other. Try to keep the amount of C in use about the same in both trimmers. Now shift the VFO frequency to produce output from the 6AG7

stage at 3400 kc., readjust the output to maintain the 1-ma. grid-current level in the 6AG7, and observe the voltage developed at the 807 grid. It should be considerably less than at the center of the band. Use a sheet of graph paper to plot a curve of grid voltage

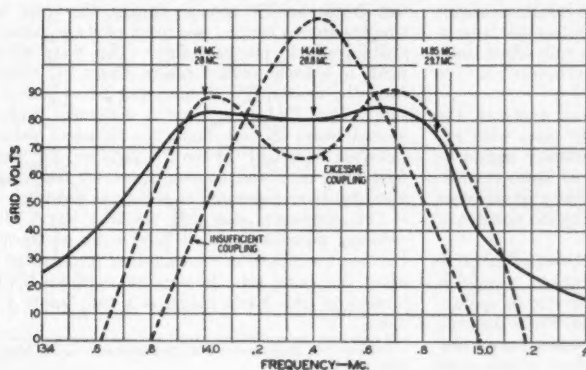
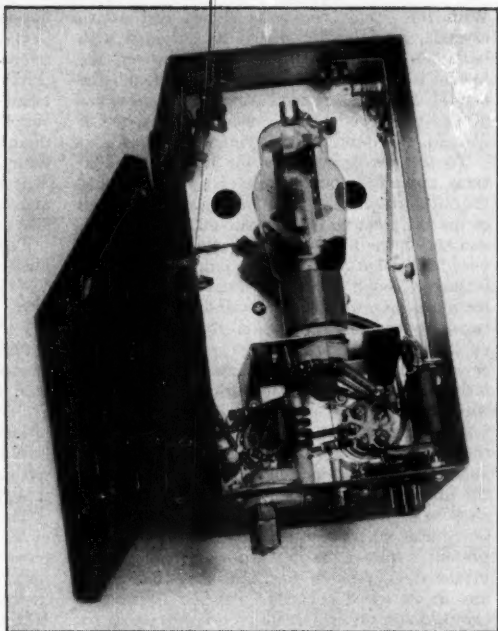


Fig. 4—Sample curves showing performance of the bandpass coupler. In addition to the actual curve obtained when the unit is adjusted properly, representative curves showing the results obtained by misadjustment are shown.

Bottom view of the transmitter. The 807 socket is mounted in a cut-down commercial bracket, with the sockets for the 6AG7 and the bandpass coupler spaced below and to either side of it. Arranged along the rear of the box are the crystal socket, the output jack, and the power plug.



versus frequency similar to that shown in Fig. 4. Increase the frequency of the VFO by about 25 kc. and again record the grid voltage after first restoring the grid current in the 6AG7 stage to 1 ma. Go through the entire 3.5-4 Mc. range in this manner and then plot the resulting curve. If the top of the curve is not broad enough to include the entire band, retune the trimmers slightly, adding capacity to one while reducing it in the other, and then plot another curve. If a double-humped curve results it is probably because the coupling between the coils is too tight. Slide the turns of the coils away from one another a very slight amount, holding them in place with a strip of Scotch tape, and run through the band again with the VFO, remembering each time to keep the input to the 6AG7 stage at the 1-ma. grid current standard. If the curve obtained is single-peaked, coupling between the coils will have to be increased. After a few trials you will be able to predict the effect of a change in either coupling or capacity, and adjustment of the other couplers will be much less tedious.

You can make the bandpass characteristics of the individual couplers pretty much what you want them to be. For example, if you are not planning to use the transmitter in the 'phone portion of the 28-Mc. band, you need not extend the response curve of the 14-Mc. coupler beyond 14.4 Mc. On the other hand, if you want coverage of the 11-meter band, the low-frequency edge of the response curve must be extended to 13.4 Mc. It is possible to obtain coverage of both the 10- and 11-meter bands in one bandpass coupler (13.4 Mc. to 14.85 Mc.), but this is rather difficult to achieve without spending considerable time in adjusting the coupling between coils. As a time-saving alternative, separate couplers can be made for these two bands.

Once the couplers are adjusted properly, the windings should be cemented in place with coil dope, and the rotors of the trimmers should be locked in position with a drop of Duco cement. When the coils are dry, give them a second coat of dope to insure against changing the position of the turns during later handling.

The end result is well worth the effort taken to produce the desired bandpass curves, because it produces a transmitter that is simple to operate and efficient over an entire band. From then on, you merely set the VFO to the desired operating frequency, resonate the 807 plate circuit, and

start transmitting without further concern for the 6AG7 stage.

In addition to simplifying your operating problems, you will also be able to feel sure that you've done the right thing by your TV-viewing neighbors. In actual on-the-air tests, the transmitter has proved itself worthy of attention by anyone troubled with TVI. Set up within 15 feet of a TV receiver tuned to Channel 6, which is in direct harmonic relationship to the transmitter frequency on all bands, no interference was experienced with the rig delivering full power to the antenna in the 80-, 40-, or 20-meter bands. A faint interference pattern was present when the transmitter was operated in the low-frequency portion of the 10-meter band, but this was not serious enough to be noticed at a distance of 8 feet from the TV screen. During the tests, a simple antenna coupler was used, plus a commercially-available low-pass filter. The tests were made in a fringe area, Granby, Conn., 45 miles from the nearest TV station, and below line-of-sight. The TV set utilized a 4-element wide-spaced beam 25 feet high. No filters or extra shielding were used in the TV receiver, but the feed lines from the transmitting and receiving antennas were separated as widely as possible.

The conclusion can only be that the TVI-reducing measures applied here really do work. By direct comparison with another transmitter¹ using the same tube line-up but without TVI protection, this latest model is a vast improvement.

¹ Smith, "A Beginner's C. W. Transmitter," *QST*, May 1948, p. 25.

The Case for Homemade Receivers

How To Get What You Want

ANYONE familiar with radio stores or radio catalogs knows that the manufacturers these days offer a variety of fancy receivers at a variety of fancy prices. The ultimate objective of the majority of the hams seems to be to own the most expensive receiver there is. Work a fellow using a "Glooperhoff 20" and he'll probably tell you that it's a real dog, that what he wants is the new "Super-Glooperhoff 66" with the silicone-plated tuning knob and the atomic-overdrive S-meter. Perhaps he feels that there is a social stigma associated with owning anything less than the most expensive receiver.

The manufacturers will never bring out a receiver that can't be improved—it just isn't possible. This isn't by way of belittling their know-how, but it is a fact simply because the customers can't agree on what they want. What is adequate selectivity for A is broad as a barn door for B. Neither A nor B has any interest in the broadcast band, but C and D won't buy a receiver without it and 20 watts of "high fidelity" audio. And so it goes. If a manufacturer wanted

to go broke in a hurry, he could try to build custom jobs to the buyer's specifications. The manufacturer is forced to build a compromise job, hoping that his guess about the average requirements will be a bit better than his competitor's.

As a result of this compromise approach, many intelligent amateurs rework their manufactured receivers to their own requirements, or they add outrigger gadgets that give them something extra. The more nearly they know what they want, the more nearly they end up with it. But the real cream, at least in our book, are the fellows who build their entire receiver from scratch. They don't do this because they can't afford a commercial job—often they are fellows who could own several such receivers—they do it because they know what they want and this is the only way to get it. The following descriptions of the receivers of three well-known amateurs will give you an idea of what some of the contemporary thinking is and how the objectives are obtained.

—B. G.

W8DX, Detroit, Mich.

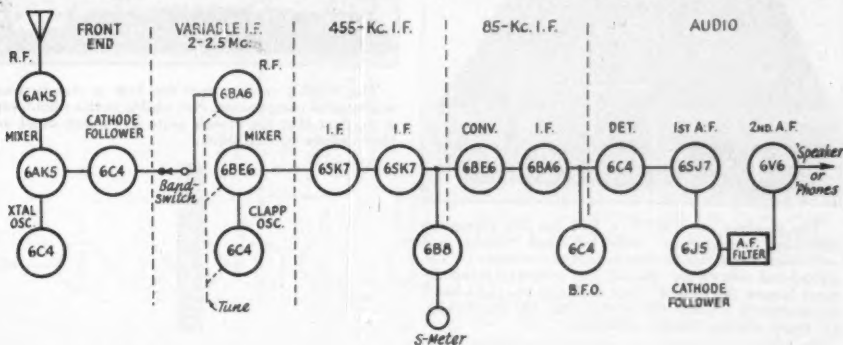
A block diagram of the "ArJayCee" receiver of Richard J. Cotton, W8DX, is shown in Fig. 1. Miniature-tube crystal-controlled converters are switched in for the particular band in use. The crystals are made to oscillate on their fundamental frequencies for the two lowest-frequency bands, and the modified-Hartley third-harmonic circuit is used on the other bands. Seven converters are used in all, for 80, 40, 20, 15, 11 and the low 1000 kc. of 10 meters. This latter is accomplished in two steps, since the tuning range of the tunable i.f. amplifier is only 500 kc. The converters are broadbanded and need no attention, other than switching in the correct one, with the exception of the 80-meter one, where a dual trimmer must be touched up when moving

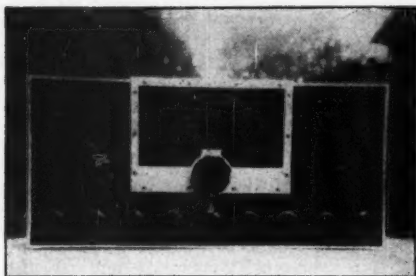
across the band. Separate antenna input fittings eliminate input switching, since separate antennas and change-over relays are used in each band except 10 and 11 meters, where one antenna serves.

The tunable i.f. amplifier covers 2.0 to 2.5 Mc. using a Clapp circuit in the oscillator portion, and the circuits have been adjusted to give greater spread in the lower 100 kc., thus spreading out the c.w. DX portion of each band. One feature of the 500-kc. spread in all ranges is, of course, that the tuning rate is always the same.

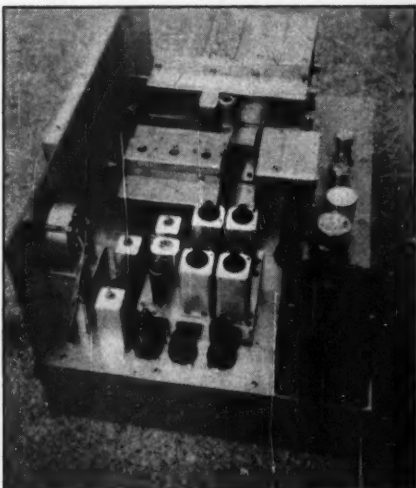
This first i.f. amplifier is followed by a conventional two-stage affair at 455 kc. that in turn feeds a sharp 85-kc. amplifier using BC-453 transformers. An infinite-impedance detector is used

Fig. 1—Block diagram of the W8DX receiver. Seven different "front ends" are used, but only one is shown.

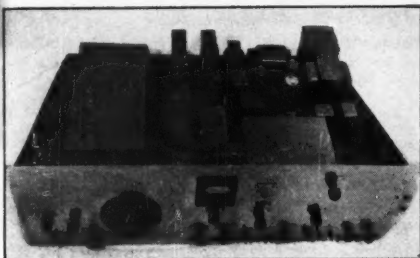




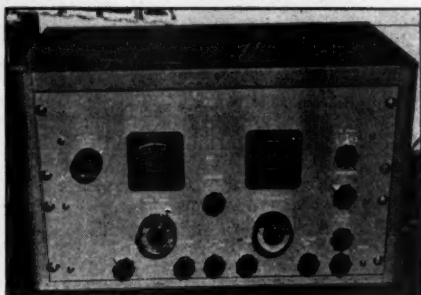
A front view of the W8DX receiver. The tuning-dial calibrations fall exactly in line because a tunable i.f. amplifier is used following crystal-controlled converters.



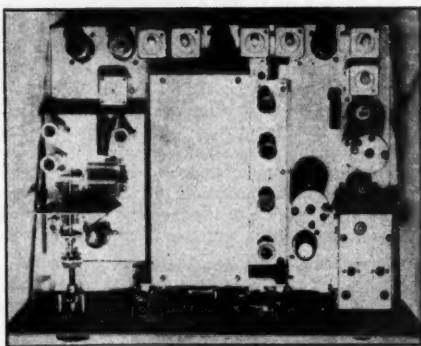
This view of the W8DX receiver shows how it is possible to put a lot of components on a chassis without making it look crowded. Several of the sections are built as demountable units, for ease in servicing or modifying when some new ideas crop up.



The receiver at W3FYS is laid out for maximum operating convenience, with left-hand tuning and switching. An audio filter is mounted outrigger on the right-hand side of the chassis. The left-hand compartment houses the tunable front end, and the right-hand compartment contains the crystal filter, the last 456-ke. i.f. stage, and the 406-ke. oscillator.



The W6MX receiver is a triple-conversion job using crystal-controlled converters and a tunable i.f. amplifier. Wide coverage is obtained with the usual handset/ band-spread dual tuning combination.



The W6MX receiver uses the best in standard and war-surplus components. Not visible in this photograph is the fact that the chassis plate is $\frac{3}{16}$ -inch dural and the sides are $\frac{1}{4}$ inch thick.

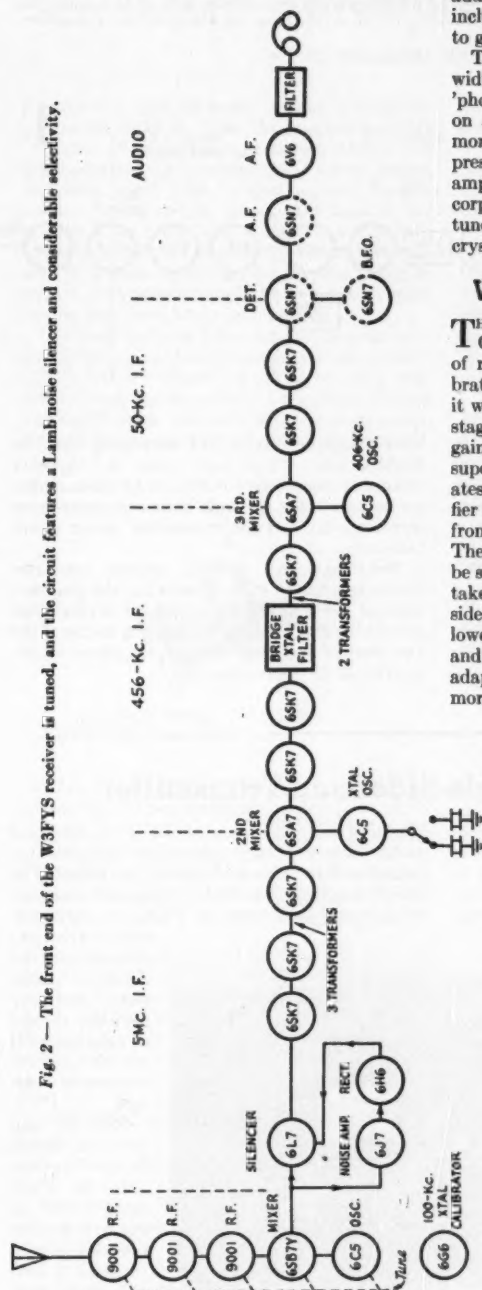


Fig. 2 — The front end of the W3FYS receiver is tuned, and the circuit features a Lamb noise silencer and considerable selectivity.

to "avoid" loading down the last transformer. The audio amplifier is conventional except for the inclusion of an audio filter that can be switched to give bandwidths varying between 1 and 3 kc.

The 85-kc. amplifier determines the i.f. bandwidth of the receiver and is a little sharp for some 'phone reception. To this end, W3DX is working on a new 200/50-kc. i.f. amplifier that will be more suitable for both 'phone and c.w. At the present it connects in at the end of the 455-kc. amplifier, but when completed it will be incorporated in the receiver chassis proper. The tuned circuits are the 200/50-kc. units used in the crystal calibrating unit of the ART-13.

W3FYS, Washington, D. C.

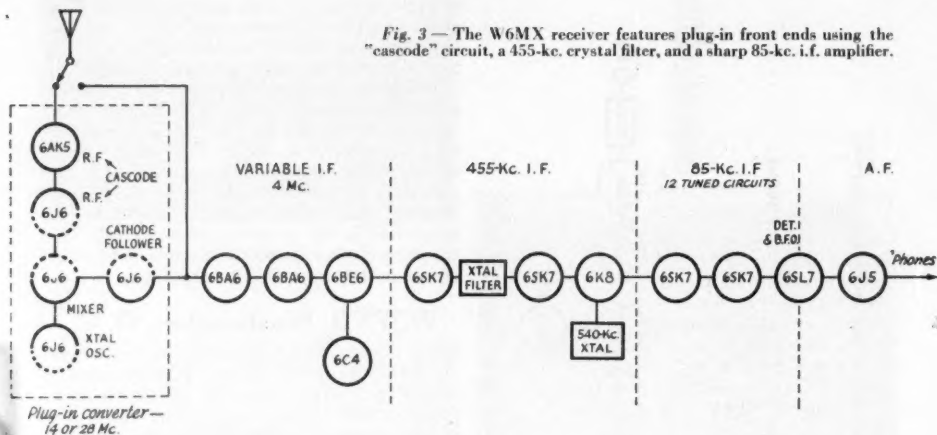
THE homemade triple-conversion receiver of Charles Weir, W3FYS, uses 23 tubes exclusive of rectifier, voltage regulators and crystal calibrator. A block diagram is shown in Fig. 2, and it will be noticed that this receiver has three r.f. stages in the front end, primarily for adequate gain ahead of the Lamb noise silencer but also for superb image rejection. The first i.f. section operates at 5 Mc. and is followed by a 456-kc. amplifier featuring a bridge-type crystal filter, modified from a circuit obtained over the air from ON4VE. The crystal oscillator ahead of the 456-kc. i.f. can be switched to the high- or low-frequency side, to take advantage of the McLaughlin "selectable-sideband" principle. The 456-kc. channel is followed by a 50-kc. unit using Miller transformers, and the entire 50-kc. amplifier and detector is an adaptation of McLaughlin's circuit. For still more selectivity, a 1000-cycle cut-off low-pass filter using toroid coils (from a design by W6WB) is available for cutting in between the output stage and the headphones.

Separate gain controls are available for each of the five sections of the receiver. An antenna trimmer is included, and also a control for touching up the 406-kc. oscillator.

W3FYS has little interest in 'phone reception, and so the receiver is pointed toward good code reception. With the audio filter and the crystal filter cut out, however, 'phone signals can be received by careful tuning. With the filters in, 'phones are completely unintelligible. The receiver is used on the 80-, 40-, 20- and 10-meter bands with good results.

W6MX, Redwood City, Calif.

THE receiver in use by Walter Harrington, W6MX, is the most recent of a number of receivers he has built down through the years. It follows the recent trend of crystal-controlled front ends followed by a tunable i.f., as shown in Fig. 3, a block diagram of the receiver. The front-end converters are made plug-in, to save space and so that various new circuits can



be tried. The cascode circuit is used at present. The tunable i.f., in the 4-Mc. range, uses the NC-183 tuning condenser, which gives bandset and bandspread tuning controls. The tunable i.f. is followed by a 455-kc. i.f. that includes a crystal filter, and this is followed by an 85-kc. sharp amplifier using transformers from a BC-453. A single 6J5 audio amplifier is sufficient for headphone output.

One feature of the receiver is its battleship construction, the chassis plate and sides being made from heavy 17ST aluminum riveted and

bolted together. It is not surprising that, as W6MX says, "You can't twist it." Another feature of the receiver is the send-receive switch on its panel that controls both a receiver-input shorting relay and the transmitter power simultaneously.

The front-panel controls include converter peaking, separate gain controls for the four sections of the receiver, b.f.o. and the crystal-filter selectivity and phasing. Subscribing to one of the two popular schools of thought, the power supply is external to the receiver.

NEW APPARATUS — Single-Sideband Transmitter

The many amateurs who have been waiting for a commercial s.s.b. suppressed-carrier transmitter to appear on the market will be interested in "SSB Jr.," a new unit announced by Eldico, Inc. Patterned after the unit developed by GE engineers and described in the November-December issue of *Ham News*, it is a 7-tube 5-watt single-sideband transmitter or exciter, complete with tubes and power supply, and will be available in either kit form or completely wired and tested. Using the phasing system of s.s.b. generation, it offers 40 db. of

sideband suppression and choice of the sideband to be used. The audio phase-shift network furnished with the kit is preadjusted and locked. The speech amplifier is suitable for use with any low-level microphone such as crystal or dynamic.

Coils are furnished for the 3.9-Mc. 'phone band, and any suitable crystal or external VFO can be used for frequency control.

SSB Jr. can be used directly into the antenna or, where more power is required, the unit can be used to excite a suitable linear amplifier.

— B. G.



A New Adventure in Ham Radio

BY G. DURHAM IPOCK,* W4EFX/3

THIS is a real life story; there's nothing fictional about it. Even the exaggerations are true! It began this past Spring when I was graduated from Crozer Seminary, Chester, Penna. For three years I had abandoned my favorite hobby, determined to devote full time to my studies. Then came May. I knew it would be a few months before I would be settled in a pastorate. With time on my hands, the bug began to scratch, and quite naturally I was infected, never having been completely immunized.

One night early in June while reading the evening paper, a classified ad caught my eye. It read, "FOR SALE — Communications receiver, suitable for amateur, as is, \$10." A telephone number was listed. With visions of super-snooper super-hets dancing in my mind, I dialed the number.



I HURRIED HOME
TO SEE IF IT WOULD WORK

"Yes, I have a receiver for sale," the party informed me. "It's a Hallcrafters S41G. . ."

I said, "Oh!"

Well, for ten bucks you can't go far wrong. The owner lived a few blocks away, but we agreed to meet on a corner about equidistant from our homes — I with \$10 in my pocket, the other lad with his receiver.

We met and exchanged greetings. It was too dark to look at the S41G, but I shook it a couple of times to make sure all the parts were bolted down, and turned it upside down to see if anything would fall out. Nothing happened, so I parted with my ten and started for home to see if the thing would work. It did! And surprisingly well!

For a while I was content to listen; that is, for a few days I tuned around on all the bands. But soon I was saying, "If only I had a little rig. It would be fun to chit-chat with some locals."

Knowing that future ham plans depended upon a number of factors, I didn't deem it wise to make an investment in gear that I would have to toss out. If I moved into a TV area, I would need a rig completely TVI-ed. If I moved into a small dwelling in a crowded city, I would probably have to

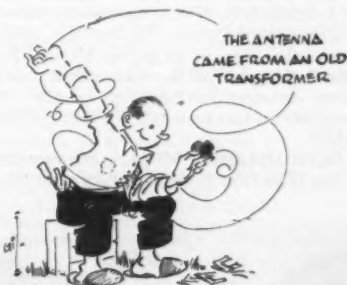
go mobile. If I moved to the country, I could have a wider range of choices.

One night as I was pondering these possibilities the XYL pulled down a couple of her favorite record albums and began to play them on the phono-oscillator/radio combination which I had rigged up some time before. With just a couple of inches of wire on the phono-oscillator for an antenna, you could hear it nicely on the kitchen radio as well as on the set in the bedroom. It was a good little record player and you've probably seen it advertised. One dealer warns that you mustn't couple it to an antenna "for it is capable of transmitting a signal 4 or 5 miles."

I began to wonder. Would it tune down to 160 meters? After a few moments I ceased to wonder, having determined that it didn't. I began to trim the tank coils a little, but my altering was clumsy and I soon found I had taken off too many turns. Then it struck me that with just a little alteration I would have a crystal oscillator. Using a conventional circuit and junkbox parts, I soon had one perking on 80 meters.

Now for an antenna. The next morning I tore up an old transformer and pieced together enough wire for a 120-foot flat-top, fed about 20 feet off center with a single wire. It was just a few feet off the ground and would have served admirably for a clothesline if only it were a little stronger.

I coupled the rig to the antenna. It was loud enough to block my receiver, so hopes ran high. About a block and a half away from me lived another ham. Could he hear me? Well, there was no harm trying. "Hey, Wes," I shouted over the landline, "take a look for me on 3987."



I called for a while, then stood by for Wes, W3EQY, who was on 40 c.w. Sure enough, he came back, his signal so loud my receiver was blocked. Removing the receiving antenna, I heard him saying, "You sound like a kilowatt up here!" That was encouraging, of course, but my antenna was almost in his back yard.

This success made me braver. That afternoon when I turned on the receiver I heard a strong

(Continued on page 84)

* Baptist Parsonage, Nashville, N. C.

Happenings of the Month

ELECTION RESULTS

The ARRL Board has three new directors and four new alternate directors as a result of the autumn membership elections, while in three other divisions the director incumbents were returned to office.

Wesley E. Marriner, W9AND, becomes Central Division Director for the 1951-1952 term, winning over the incumbent, John G. Doyle, W9GPI, 930 votes to 727. Alternate director the past term and previously Illinois SCM, Wes has been an active ham for many years, currently holding appointments as ORS, OPS, OBS and being DXCC and a member of the A-1 Operator and Old Timers Clubs. He is assistant to the research engineer, Illinois state highway department, and lives in Dixon, Ill.

Joseph M. Johnston, W2SOX, was reelected director of the Hudson Division, winning with 1249 votes to 755 for Gay E. Milius, jr., W2NJP. The alternate directorship is now held by **George V. Cooke, jr., W2OBU**, who won over Earl R. Thomas, W2MM, by almost the same vote — 1246 to 753.

In the New England Division, **Frank L. Baker, jr., W1ALP**, is the new alternate director, having garnered 644 votes to 514 for the incumbent, Clayton C. Gordon, W1HRC.

R. Rex Roberts, W7CPY, was reelected director of the Northwestern Division by a sizable majority, 673 votes to 279 for his opponent, Harold W. Johnston, W7DXF.

William H. Jacobs, W4CVQ, became the new representative of Roanoke Division members in close balloting: 388 votes to 341 for the incumbent, J. Frank Key, W4ZA. An assistant director for the past several years, OM Jacobs is a retired professional soldier, living in Fayetteville, N. C.

John R. Griggs, W6KW, remains Southwestern Division director, having won handily, 1051 votes to 350 for his opponent, William J. Schuch, W6CMN.

A. David Middleton, W5CA, is the new director of the West Gulf Division, rolling up 404 votes

to 320 for the incumbent, David H. Calk, W5BHO, and 234 for William M. Mead, W5APW. W5CA is a staff member of the Sandia Corp. and has been hamming for some 30 years, having held 14 calls in seven different districts. He is presently a communications officer for the New Mexico wing, Civil Air Patrol. The new alternate director in the West Gulf Division is **Frank E. Fisher, W5AHT/AST**, who won over D. Morgan Richards, W5HBM, 718 votes to 237.

In a special election to fill the vacancy, **Alfred M. Gowan, W0PHR**, became alternate director of the Dakota Division when he received 205 votes to 142 for his opponent, Paul M. Bossoletti, W8EZY/Ø. W0PHR's term runs until January 1, 1952.

REGULATIONS CHANGES

On November 13th FCC took two actions relating to the amateur regs, in line with discussions on page 26 of December *QST*:

To make it absolutely plain that FCC has no ruling against making photostat copies of amateur licenses, the Commission added the following sentence to § 12.25:

However, nothing in this section shall be construed to prohibit the photocopying for other purposes of an amateur radio operator license.

It is already stipulated in the regulations that the operator portion of a photocopy is not valid, so it is useful only as a second station authorization such as a mobile installation.

To ease the renewal requirements on a temporary basis for amateurs in military service, FCC appended to § 12.27 a footnote reading as follows:

By order dated and effective November 13, 1950, the Commission temporarily waived to a limited extent the requirements that all applications for the renewal of an amateur operator license be accompanied by a showing that the applicant actually operated an amateur radio station or stations in the manner and upon the occasions or for the period of time specified in § 12.27, in cases where it is shown that the applicant was unable to conduct such operations because he was on active duty in the armed forces of the United States. This order is applicable to all amateur operator licenses which expire during the period January 1 to December 31, 1951, inclusive.

In the first telecast in the Philadelphia area of the operation of an amateur radio station, Atlantic Division Director Walter Bradley Martin, W3QV (seated), explains the operation to Roy Neal, W3GIB, program moderator, Harry Grady, Red Cross disaster director of the Southeastern Pennsylvania Chapter, and the WPTZ television audience. Demonstrating the cooperation between the ARRL and the Red Cross, a message was dispatched to Red Cross Headquarters and an answer returned during the program.



QST for

Since September 1st amateur written examinations have been graded in the field office where taken instead of in Washington; this change, a reversion to the pre-1933 system, has speeded up the processing of amateur applications — which was precisely the objective.

VOA. AMATEUR PROGRAM SCHEDULE

For its weekly program of amateur news and doings of world-wide interest, VOA has added a third airing beamed to Central and South America, starting at 8:44 P.M. EST each Saturday (0144 GCT Sunday). The complete schedule of VOA amateur program broadcasts is as follows:

- Saturday, 8:44 P.M. EST (0144 GCT Sunday), beamed to Central and South America.
Frequencies in Mc.: 6.08, 9.53, 9.67, 9.70, 11.71, 11.79, 15.13, 15.21, 15.27, 15.33, 15.35, 15.76, 17.78, 17.80, 17.83, 21.46, 21.51.
- Sunday, 9:45 A.M. EST (1445 GCT), beamed to the Far East.
Frequencies in Mc.: 6.06, 6.185, 9.515, 9.57, 9.6, 11.73.
Far Eastern Relays: 6.12, 11.79, 11.89, 15.25, 15.33.
• Sunday, 2:15 P.M. EST (1915 GCT), beamed to Europe.
Frequencies in Mc.: 11.87, 15.27, 17.78, 21.5.
European Relays: 7.2, 9.7, 15.23.

EXAMINATION SCHEDULE

The Federal Communications Commission will give amateur examinations during the first half of 1951 on the following schedule. Remember this list when you need to know when and where examinations will occur. Where exact dates or places are not shown below, information may be obtained, as the date approaches, from the Engineer-in-Charge of the district. *Even stated dates are tentative and should be verified from the Engineer as the date approaches.* No examinations are given on legal holidays. All examinations begin promptly at 9 A.M. except as noted.

Albuquerque, N. M.: April 2.
Amarillo, Tex.: Mar. 28.
Anchorage, Alaska, Federal Bldg.: By appointment.
Atlanta, Ga., 411 Federal Annex: Tuesday & Friday at 8:30 A.M.
Bakersfield, Calif.: Sometime in Feb.
Baltimore 2, Md., 508 Old Town Bank Bldg.: Monday through Friday. When code test required, at 8:30 A.M.
Bangor, Me.: Sometime in April.
Beaumont, Tex., 329 P.O. Bldg.: Thursday and by appointment.
Billings, Mont.: May 5.
Birmingham, Ala.: Mar. 7 and June 6.
Boise, Idaho: Sometime in April.
Boston, Mass., 1600 Customhouse: Monday through Friday, 8:30 A.M.
Buffalo, N. Y., 328 P.O. Bldg.: Thursday.
Butte, Mont.: May 3.
Charlestown, W. Va.: Sometime in Mar. and June.
Chicago, 246 U. S. Courthouse: Friday.
Cincinnati: Sometime in Feb. and May.
Cleveland, Ohio: Sometime in Mar. and June.
Columbus, Ohio: Sometime in Jan. and Apr.
Corpus Christi, Tex.: Mar. 8 and June 7.
Cumberland, Md.: April 10.
Dallas, Tex., 500 U. S. Terminal Annex Bldg.: Monday through Friday.
Davenport, Iowa: Sometime in Jan. and April.
Denver, Colo., 521 New Customhouse: 1st and 2nd Thursdays and by appointment.
Des Moines, Iowa: Jan. 11 and Apr. 12.
Detroit, Mich., 1029 Federal Bldg.: Wednesday and Friday.

El Paso, Tex.: April 4.
Ft. Wayne, Ind.: Sometime in Feb. and May.
Fresno, Calif.: Mar. 14 and June 13.
Grand Rapids, Mich.: Sometime in Jan. and Apr.
Hartford, Conn.: Sometime in March.
Hilo, T. H.: April 5.
Honolulu, T. H., 609 Stangenwald Bldg.: Monday, 8:30 A.M.
Houston, Tex., 324 U. S. Appraisers Stores Bldg.: Tues. and Fri.
Indianapolis, Ind.: Sometime in Feb. and May.
Jackson, Miss.: Mar. 14 and June 13.
Jacksonville, Fla.: April 14.
Jamestown, N. Dak.: April 11.
Juneau, Alaska, 6 Shattuck Bldg.: By appointment.
Kansas City, Mo., 3200 Fidelity Bldg.: Friday, 8:30 A.M.; also by appointment.
Klamath Falls, Ore.: Sometime in May.
Knoxville, Tenn.: Mar. 14 and June 20.
Lihue, Kauai, T. H.: April 26.
Little Rock, Ark.: Jan. 17 and April 11.
Los Angeles, 539 Federal Bldg.: Wednesday, 9:00 A.M. and 1:00 P.M.
Louisville, Ky.: Sometime in May.
Manchester, N. H.: Sometime in May.
Marquette, Mich.: May 2.
Memphis, Tenn.: Jan. 5 and April 6.
Miami, Fla., 312 Federal Bldg.: Monday and Thursday.
Milwaukee, Wisc.: Sometime in Jan. and Apr.
Mobile, Ala., 324 U. S. Courthouse and Customhouse: Wednesday and by appointment.
Nashville, Tenn.: Feb. 7 and May 9.
New Orleans, La., 400 Audubon Bldg.: Monday through Friday, except Monday and Thursday only at 8:30 A.M. when code test required.
New York, 748 Federal Bldg.: Monday through Friday.
Norfolk, Va., 402 Federal Bldg.: Monday through Friday, except Friday only when code test required.
Oklahoma City, Okla.: Jan. 18-19 and Apr. 19-20.
Omaha, Nebr.: Jan. 18 and Apr. 19.
Philadelphia, 1005 U. S. Customhouse: Monday through Friday.
Phoenix, Ariz.: Sometime in Jan. and Apr.
Pittsburgh: Sometime in Feb. and May.
Portland, Me.: Sometime in April.
Portland, Ore., 307 Fitzpatrick Bldg.: Friday, 8:30 A.M.
Roanoke, Va.: April 7.
St. Louis, Mo.: Feb. 8 and May 10.
St. Paul, Minn., 208 Uptown P.O. Bldg.: Friday.
Salt Lake City, Utah: Mar. 14 and June 13.
San Antonio, Tex.: Feb. 8 and May 10.
San Diego, 230 U. S. Customhouse: By appointment.
San Francisco, 323-A Customhouse: Monday and Friday, 8:45 A.M. Also, Class A Monday through Friday.
San Juan, P. R., 323 Federal Bldg.: Thursday, and Monday through Friday at 8:00 A.M. if no code test required.
Savannah, Ga., 214 P.O. Bldg.: By appointment.
Schenectady, N. Y.: Mar. 14-15 and June 13-14.
Seattle, 808 Federal Office Bldg.: Friday.
Sioux Falls, S. D.: Mar. 14 and June 13.
Spokane, Wash.: May 1.
Springfield, Mo.: June 13.
Syracuse, N. Y.: Sometime in Jan. and Apr.
Tallahassee, Fla.: Jan. 13.
Tampa, Fla., 410 P.O. Bldg.: By appointment.
Tucson, Ariz.: Sometime in April.
Tulsa, Okla.: Jan. 22-23 and Apr. 23-24.
Wailuku, T. H.: April 7.
Washington, D. C., 415 22nd St., N.W.: Monday through Friday, 8:30 A.M.
Wichita, Kans.: Mar. 8.
Williamsport, Pa.: Sometime in Mar. and June.
Wilmington, N. C.: June 2.
Winston-Salem, N. C.: Feb. 3 and May 5.

NATIONAL CONVENTION DATES

Dates for the ARRL National Convention in Seattle have been set as Friday-Saturday-Sunday, July 27-28-29, 1951. Start making your vacation plans now!

A Sensitive Field-Strength Meter

BY BYRON GOODMAN,* WIDX

FIELD-STRENGTH meters of the crystal-diode type fall down in two important departments: they aren't logarithmic and they aren't sensitive enough. By not being logarithmic they fool the operator into striving for a little extra meter reading that has no meaning at all, so far as the all-important decibel is concerned, and by not being sensitive enough they make it impossible to use them at any great distance from the antenna. The meter to be described is not perfectly logarithmic but it approaches it, and it is sensitive enough to be used several thousand feet away from a 3-element beam fed with a few hundred watts. If you wonder at the insistence on metering a beam at a distance, all we can say is that we personally put more reliance in readings made this way than we do those made within only a few wavelengths. If you want to rely on readings made nearby we won't argue with you — after all, it's *your* beam.

You can build a meter that will be very close to logarithmic by cascading several variable- μ r.f. stages ahead of a diode detector, controlling the r.f. stages from the developed diode voltage in the usual manner of receiver a.v.c. systems, and measuring the diode current. The more r.f. stages you cascade, the more nearly logarithmic the device will be over a wide range. However, since a field-strength meter is something you use only a few times a year, it makes sense to compromise somewhere along the line, so we used only one r.f. stage in this unit.

Field-strength meters should be readily portable and capable of being used anywhere, so this one was built for battery operation. It requires a $1\frac{1}{2}$ -volt "A" and a 45-volt "B" battery.

When cathode-type tubes are used it is a simple matter to feed a developed diode voltage back to the grid of an r.f. tube, but with filament-type tubes and a common filament supply you have to look around for some dodge. In this case it consists simply of grounding the grid and lifting the filament circuit with the diode voltage, as can be seen in Fig. 1. The rectified voltage developed by the diode across R_1 is applied between grid and filament of the 1T4 r.f. amplifier, thus reducing the r.f. gain as stronger signals get

through to the diode. The control grid of the pentode portion of the 1U5 is grounded, and so this same diode voltage is applied to the pentode meter amplifier. The meter reading decreases as the signal becomes stronger.

Slug-tuned inductances were used in the grid and plate circuits of the r.f. amplifier only for

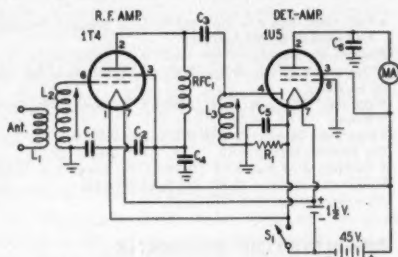


Fig. 1 — Wiring diagram of the sensitive field-strength meter.

C_1, C_2, C_3 — 0.001- μ fd. ceramic.

C_4, C_5 — 470- μ fd. ceramic.

C_4 — 0.005- μ fd. ceramic.

R_1 — 1.5 megohms.

L_1 — 14 Mc.: 8 turns No. 30 d.c.c.

28 Mc.: 6 turns No. 22 d.c.c.

L_2 — 14 Mc.: 34 turns No. 30 d.c.c.

28 Mc.: 24 turns No. 22 d.c.c.

L_3 — 14 Mc.: 27 turns No. 28 d.c.c.

28 Mc.: 16 turns No. 20 d.c.c.

L_1 wound over ground end of L_2 . L_2 and L_3 close-wound on National XR-50 slug-tuned coil forms.

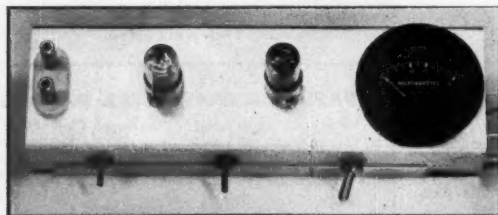
RFC₁ — 750 μ h. (National R33).

S_1 — S.p.s.t. toggle.

MA — 0.5 milliammeter.

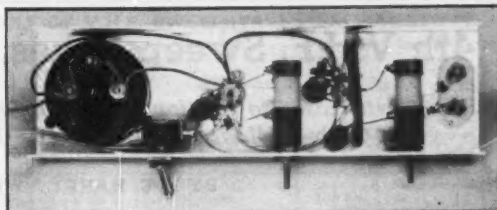
economical reasons, and there is no good reason why these circuits couldn't be tuned with variable condensers if so desired. The slug-tuned inductors shown in Fig. 1 resonate with the circuit capacities to the signal frequency.

Dozens of variations in mechanical construction will undoubtedly occur to anyone interested in duplicating this meter. We elected to build it as shown only because it took a minimum of time that way, and not for any aesthetic reasons. The r.f. amplifier oscillated before the copper interstage shield was added, but with it in place everything cleaned up.



This sensitive field-strength meter will give usable readings several thousand feet from the beam you are tuning, and so is more useful than the usual crystal and meter. A microammeter is not needed — the meter shown in the photograph has been shunted to give a full-scale deflection at 0.5 ma.

A view of the f.s. meter with the bottom cover removed. A copper baffle plate straddling the r.f. amplifier socket was found necessary to eliminate regeneration. Otherwise, there is nothing fancy about the construction.



With the 1U5 connected as shown, the no-signal plate current is a shade over 0.5 ma. You can bring this current right to 0.5 ma. by shunting the meter with a suitable resistor. Our meter is a surplus 0-150 microammeter shunted to give full-scale deflection at 0.5 ma.

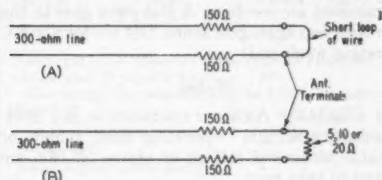


Fig. 2 — Attenuators for use with the f.s. meter when the signal is too strong. The attenuation in that shown at (A) is varied by changing the length of the short loop of No. 20 wire, and that at (B) by varying the value of the small resistor.

The f.s. meter is used with a 300-ohm-line folded-dipole receiving antenna cut for the center of the band in use, and the antenna should be as high above ground as is reasonable. We also believe that the receiving antenna should be at least as high above sea level as the transmitting antenna is, and preferably higher, but here again we won't argue if you want to use yours lower — you will still get meter readings.

This meter has been used to tune up a 20-meter beam, with the meter located in the field

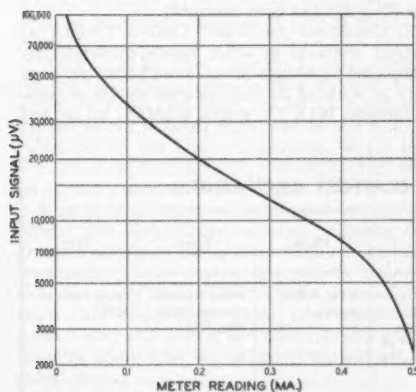


Fig. 3 — Calibration curve of the f.s. meter, made at 14 Mc. with a signal generator and no attenuator in the input circuit.

some 1500 feet away from the beam. The power input to the transmitter ran 500 watts because there was no convenient way to reduce the power, and at this level we had to add an attenuator at the input of the f.s. meter. The attenuator consisted of two 150-ohm resistors connected as shown in Fig. 2. A calibration curve of the meter, Fig. 3, was made with a signal generator, and it indicates the order of linearity of the meter. The relative readings won't change with an input attenuator, of course. It can be seen that between meter readings of 0.45 and 0.05 ma. the scale is close to logarithmic (linear when plotted on semi-log paper) and is good for a range of almost 20 db. between these two limits.

If you are serious about getting the most out of your beam, we believe that this is a handy device. However, if you know how the S-meter on your receiver behaves; i.e., if you know that a decibel is truly a decibel and that the scale doesn't crowd or expand at one or both ends, you can use your receiver just as well in the field, with a good receiving antenna and proper input attenuators.

Strays

Speedier and more flexible communications will be brought to Uncle Sam's GIs by a new series of Signal Corps radio sets employing the "building block" principle. The new units, of standardized construction, can be assembled into as many as thirty different combinations to meet any communications contingency. Because the "blocks" are manufactured separately and in quantity, economies in procurement and maintenance also will be realized.

Taking W6ZMZ's advice in February 1949 *QST* to heart, landlord-troubled W0ARO installed an invisible antenna in early spring of 1950. A quarter of a pound of No. 30 wire and dozens of lead fishing sinkers later, in September 1950, Hal QSOed W4WP to complete his WAS. Says W0ARO, "The sinkers were used as a weight on the end of a 60-foot length of the wire which was thrown some 20 to 25 feet high into a nearby tree. Of course, the antenna blew down often but a vigilant watch kept the blown-down pieces gathered in and hidden. Come nightfall, another antenna was thrown up in the tree. All states except two were worked on 7 Mc., New Hampshire and South Carolina being raised on 14 Mc."

4th V.H.F. Sweepstakes, Jan. 13th-14th

ARRL Certificates to Section and Club Leaders—Gavel for Winning Club—All Work Must Be on 50 Mc. and Above

BY F. E. HANDY,* WIBDI

THE frank aim of this contest is to work as many v.h.f. stations as possible in one week end. All points from such work will be multiplied by the number of *different* ARRL sections worked. "CQ Sweepstakes, this is W....., over" (on c.w. just "CQ SS de..... K") will identify stations desiring to make contest exchanges. The Fourth Annual V.H.F. Sweepstakes will start at 2:00 P.M. your local time, Saturday, January 13th, ending at midnight Sunday. Phone, m.c.w. or c.w. may be used, with results all contributing to one score.

If an exchange of SS data is completed in both directions *two* points may be claimed. To make it easy to record exchanges they should be sent in the order of information shown. Exchanged information is in the form of a message preamble, with the ARRL section¹ substituted for the city and state, and the RST report for "check." Any station you work is good for *one* point in the score if you get the other operator's acknowledgment of "message," whether he is in the contest for score or not.

Contest reporting forms for your convenience will be sent free on request. Neither advance entry nor form is *required*. Follow the log arrangement shown. All lists, small or otherwise, are welcomed by ARRL to help support claims and make

complete results in *QST* possible. Report as soon as the test is over.

Awards — Individual and Club

Certificate awards will go to V.H.F. Sweepstakes winners in *each* ARRL section and to leading operators of clubs where three or more submissions are received. A *club gavel* goes to the club with top aggregate score. Get set for a v.h.f. operating week end!

Rules

1) *Eligibility*: Amateur operators in any field-organization section¹ operating fixed, mobile or portable *under one call* on or above 50 Mc. are invited to take part.

2) *Object*: Amateurs in U. S. and Canadian sections of the ARRL field organization will attempt to contact as many other stations in as many sections as possible.

3) *Contest Periods*: The contest starts at 2:00 P.M. your local time Saturday, Jan. 13, 1951, and ends at midnight Sunday, Jan. 14, 1951.

4) *Exchanges*: Contest exchanges, including all data shown in the sample, must be transmitted and receipted for as a basis for each scored point.

5) *Scoring*: (a) Contacts count *one point* when the required exchange information has been received and acknowledged, a *second point* when exchange has been completed in both directions.

(b) Final score is obtained by multiplying totaled points by the number of *different* ARRL sections¹ worked (the number in which at least one SS point has been credited).

6) *Conditions for Valid Contact Credit*: (a) Repeat contacts in other bands confirmed by completed exchanges of *up to two points per band* may be counted for *each different station* worked. (Example: W1XXX works W3MQU on 50 and

* Communications Manager, ARRL.

¹ See list of sections in the ARRL field organization, page 6. Awards include Puerto Rico, Hawaii, Alaska. In operating use section name abbreviations such as E. Mass., R. I., W. N. Y., Neb., N.Y.C.-L.I.

² In 'phone RST exchanges only two numerals need be used. Say *Readability . . . Strength . . .* On c.w. full 3-number RST reports should be logged.

³ Where only one point is made on a contact you can add a point by working this station again for exchange in the opposite direction later. Leave right or left report column blank so that other pairs of exchanges completed in one contact are side by side in your report.

EXPLANATION OF V.H.F. SS CONTEST EXCHANGES

<i>Send Like Standard Msg. Preamble</i>	<i>NR</i>	<i>Call</i>	<i>CK</i>	<i>Place</i>	<i>Time</i>	<i>Date</i>
Exchanges	Contest numbers 1, 2, 3, etc., a new NR for each station worked	Send your own call	CK (Readability . . . Strength . . . or RST ² of station worked)	Your ARRL section ¹	Send time of transmitting this NR	Send date of QSO
Purpose (example)	QSO NR tells how you are doing. (NR 1)	Identification (WIAW)	All exchange reports (589)	Section ¹ vital contest data. (E. Mass.)	Time and date must fall in contest period. (6R55 P.M. Jan. 13)	

STATION W. . . — SUMMARY OF V.H.F. SWEEPSTAKES EXCHANGES

Freq. Band (Mc.)	SENT (1 point)				Time .. ST	Date (Jan.)	RECEIVED (1 point)				Time	Date (Jan.)	Number of Each Different New Section as Worked	Points
	NR	Stn.	CK- RST	Section			NR	Stn.	CK- RST	Section				
80	1	WIAW	57	Conn.	4:15 P.M.	13	3	W1QIX	47	Conn.	4:18 P.M.	13	1	2
80	2		43		4:35 P.M.	13	7	W1HDQ	50	Conn.	4:40 P.M.	13	..	2
80	3		58		9:09 P.M.	13	6	W1EIO	359	Maine	9:11 P.M.	13	2	2
144	4		49		9:30 P.M.	13	32	W1CLS	58	E. Mass.	9:36 P.M.	13	3	2
144	5		57		9:50 P.M.	13	15	W18F	58	Conn.	9:46 P.M.	13	..	2
80	6		54		11:30 P.M.	13	11	W2OHE	48	N. Y. C.-L. I.	11:32 P.M.	13	4	2
144	7		58		11:35 P.M.	13	30	W1QIX	57	Conn.	11:35 P.M.	13	..	2
144	8		57		11:45 P.M.	13	21	W3MKL	59	Md.-Del.-D.C.	11:56 P.M.	13	5	2
144	..	..	..	..	..	..	18	W4FNR	59	E. Fla.	12:34 A.M.	13	6	1
144	9	WIAW	54		8:50 A.M.	14	27	W1NY	59	W. Mass.	8:47 A.M.	14	7	2
80	10		479		9:18 P.M.	14	12	W5AJG	379x	N. Tex.	8:20 P.M.	14	8	2
80	11		589		10:40 P.M.	14	20	VE1QY	599	Maritime	11:35 P.M.	14	9	2

No. Bands Used: 2 9 Sec., 23 Pts.

Number and names of operators having a share in above work:

Claimed score: 23 points X 9 sections = 207.

I hereby state that score and points set forth in the above summary are correct and true.

Equipment:

Signature:

Address:

Tube line-up:

Number different stations worked:

144 Mc. for complete exchanges, 2 points each on each band. 2 + 2 gives 4 points but only *one* section multiplier.)

(b) Crossband work shall not count for any points or sections.

(c) Fixed-, portable- or mobile-station operation under one call, from one location only, is permitted.

7) *Awards:* Entries will be classified as single- or multioperator, a single-operator station being defined as one manned by an individual amateur who neither receives assistance nor gives assistance to any person in the contest period. Certificates will be granted based on the leading work in the single-operator classification in each ARRL section. Multioperator work will be grouped separately in the *QST* official report of results.

When three or more individual club members compete and submit logs naming the club with which they are identified, an ARRL certificate will be issued through such club to the leading individual in the local competition. When less than three individual logs are received there will be no club award or club mention.

A gavel with engraved sterling-silver band is offered the club whose secretary submits the greatest aggregate score, such claim successfully confirmed by *individual member reports* (resident club members *only*). Claims from federations, radio club councils, or other combinations of radio clubs, will not be accepted. Special memberships granted for contest purposes will not be recognized.

8) *Conditions of Entry:* Each entrant agrees to be bound by the provisions of this announcement, the regulations of his licensing authority, and the

decisions of the Award Committee.

9) Reports from all entrants must be postmarked no later than January 29, 1951, to be considered for awards.

Strays

Many times we've heard a DX man, just short of 100 confirmations, lamenting, "If I had a boat, I'd sail down to Jebu and personally get a QSL from that so-and-so!" Well, when postwar DXCC certificate No. 1000 was issued recently to William J. Cryer, jr., W6RCC, we noted that Bill is in the business of designing, building, and repairing boats!

A new edition of the popular *RCA Receiving Tube Manual* is now available to amateurs and industry people. Designated RC-16, the new book contains over 300 pages covering more than 460 receiving tubes and kinescopes. The sections on theory, circuits, and applications have also been expanded. Copies of RC-16 are available at 50 cents each from RCA tube distributors or by mail from Commercial Engineering, RCA Tube Department, Harrison, N. J.

If you've been curious as to the ability of Amphenol 300-ohm Twin-Lead to support itself when used as an 80-meter folded dipole, you'll be interested in the lab tests made by W4CVO. Les, who has successfully used such a homemade antenna for the past two years, found that the ribbon has a breaking or tensile strength of 110 pounds, which is approximately equivalent to that of ordinary soft-drawn No. 14 copper wire.



United States Naval Reserve



Code Practice

THE Naval Reserve page, December *QST*, listed transmission schedules for certain Naval Reserve Radio Stations. Because of the moderate speeds employed, it was suggested that the transmissions be used for code practice. Attention is now invited to an additional schedule. Naval Reserve Training Center, Santa Barbara, Calif., N1RRF, transmits code practice on 2096 kc. each Wednesday and Thursday, beginning at 2015 PST. Twenty-minute transmissions are made at each of three speeds — 5, 10 and 15 w.p.m.

MARS Dedication

Dedication ceremonies in connection with the opening on October 24, 1950, of the new MARS network control station in the Pentagon Building, Washington, D. C., included a two-way voice radio contact with the U.S.S. *Roanoke*. The following message was transmitted by the *Roanoke*:

From a cruiser at sea in the Atlantic Ocean, the Navy salutes MARS radio station WAR. Your new station will be another important link in America's Military Amateur Radio System. The American Radio Amateur has a proud record in war and peace. Twenty-five years ago the radio amateurs formed the backbone of the Naval Communication Reserve and have consistently contributed to the excellence of Naval Communications. The concept of the Naval Communication Reserve is continued today in the Naval Reserve Electronics Program, which from its inception realized extensive participation of the radio amateurs. Their counsel and assistance was most valuable in the planning and implementation of the entire program for the Naval Reserve amateur nets, which paralleled the Naval Reserve nets. The U.S.S. *Roanoke* is happy to act as spokesman for the Navy in extending our welcome and best wishes to MARS radio station as a most important link in the Military Amateur System.

Here and There: There is a renewed burst of activity at W3USN, Naval Reserve Training Center, Washington, D. C.

Many good contacts are being made on 7-Mc. c.w. and 3.85-Mc. 'phone. Recent operators at W3USN have been W1BE, W3EC, W3HGY, W3KIP, W3PGB, and W3ZAN. Incidentally, W3ZAN is a Navy dentist, on duty at the Naval Gun Factory dispensary; he is an old-time ham, formerly signing W2ZAN and KP4IV.

Lieut. Tillman Morgan, USNR, commanding officer, Organized Electronics Company 8-6, Eureka Springs, Ark., has been named a member of the Eighth District Naval Reserve Policy Board, scheduled to convene on January 16th. He will represent the district Electronics Program. The Board will discuss Naval Reserve policies and problems and make recommendations for consideration by the National Naval Reserve Policy Board which is slated to convene at the Navy Department, Washington, on April 9th. . . . The NROTC Unit, University of New Mexico, Albuquerque, has joined the Eighth District Naval Reserve communication network and will attend radio drills each Thursday evening. . . .

The mobile communication unit assigned to Naval Reserve Training Center, Beaumont, Texas (A5NBW), was used as communications center for the First Battalion Commanding Officer, Texas State Guard, during an emergency evacuation drill of the City of Port Arthur. . . . This mobile installation also was the center of attraction at a hamfest of the South Texas Emergency Net, held at Tyrell Park, Beaumont, in September. . . . On both occasions D. E. Campbell, RMN1, USNR (W5OGG), was commended for his efficient use of the unit. . . .

K5NAZ, Naval Reserve Training Center, Lubbock, Texas, participated in ARRL's Simulated Emergency Test in October, using emergency power. Simulated emergency traffic was handled on the 3.5- and 28-Mc. bands. Battery-operated equipment was placed in two fire stations by Naval Reserve personnel and operated by members of the South Plains Amateur Radio Club. . . . The Arrowhead Radio Amateurs, Duluth, Minn., set up equipment in the Civic Center for the ARRL Simulated Emergency Test. Power was furnished by a gas-driven generator supplied by the Naval and Marine Corps Reserve Training Center (K0NRN). K0NRN/0, a battery-powered installation, was set up and operated on 3.85-Mc. 'phone by Lieut. Cmdr. W. A. Walker, USNR, (W0KNR). . . . Naval Reserve Training Center, Amarillo, Texas (K5NBK), was another Reserve activity participating in the ARRL Emergency Test. A mobile unit was operated on 3875 kc. . . .

Volunteer Electronics Company 3-23 is located at the Grumman Aircraft & Engineering Corporation, Bethpage, N. Y. K2NAC is operated on the ham bands, 'phone and c.w. . . . Alice Sargent, RMN2, USNR (W1880), has departed for Okinawa in a Civil Service billet. W1880 is a 'phone enthusiast and expects to work some Stateside DX. . . . Lieut. Cmdr. L. E. (Gene) Harrison, USNR, an old-timer in the Reserve, has resumed operation of his amateur station W5BAM after eight years of silence. He also has joined the Eighth District Reservist-Amateur radio net. . . . Volunteer Electronics Company 4-6, Stroudsburg, Penna. (K3NAC), was adjudged the "outstanding company of its type" in the Fourth District Naval Reserve Competition for 1950. . . .

(Continued on page 86)



A corner of the Naval Reserve exhibit at the ARRL Midwest Convention, held in October. The transmitting and receiving equipment shown was operated on 7-Mc. c.w. under the call of the Des Moines Naval Reserve Training Center, K0NRD.

QST for

A Wide-Range Test Oscillator

Fifty Cycles to 500 Kilocycles in One Simple, Compact Unit

BY JULIUS GALIN,* WILPF

A SHORT TIME ago the National Bureau of Standards released information on a wide-range bridge-type RC oscillator developed by Peter G. Sulzer (who is also W3HFW) at the Bureau. The oscillator as described covered the range from 20 cycles to 2 megacycles, using a relatively simple circuit. In addition to the wide range, it was stated that the new circuit had the additional advantages of essentially undistorted output waveform, constant output voltage, and good frequency stability. Subsequently an article on the oscillator, by Mr. Sulzer, appeared in the September, 1950, issue of *Electronics*.

A test oscillator that covers both audio and the commonly-used receiver intermediate frequencies is obviously a useful piece of test gear for the ham shack, so we proceeded to put one together on a breadboard to find out how it worked. The data released by the Bureau included only a circuit diagram and a very general statement of the operating principles, so it was necessary to find out for ourselves whether there were any tricky points in the operation of the circuit. Also, in a ham model it hardly seemed necessary to go below about 50 cycles or above 500 kilocycles, since this range would cover all the useful audio and intermediate frequencies. As it turned out, this somewhat reduced range simplifies the unit to some extent, since it avoids the extreme regions in which it is more difficult to get suitable components and satisfactory performance.

The published circuit had no provision for controlling the output voltage, a feature that would be needed in a ham test oscillator. After some consideration, and a few tests, it was decided that the addition of a cathode-follower output tube would be worth while, since it would offer a means for using an attenuator arrangement that would not load the oscillator itself and would avoid the variable output impedance that would result from simply connecting an attenuator directly at the output terminals of the unit. The circuit to be described therefore has one more tube than the original oscillator.

* Technical Assistant, QST

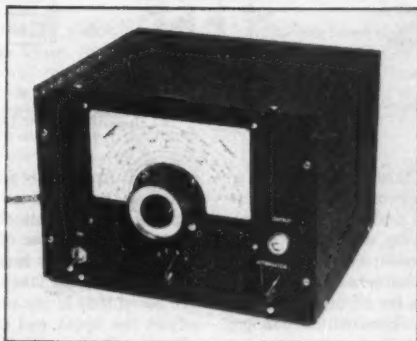
The Circuit

The oscillator consists of a 6AG7 amplifier coupled to a 6AG7 cathode follower. As shown in Fig. 1, two feed-back loops are provided: (1) a cathode-to-cathode regenerative loop consisting of C_5 and lamp I_1 ; (2) a cathode-to-grid degenerative loop consisting of the bridged-T circuit. The oscillation occurs at the null frequency of the bridge, where the degeneration is minimum. Excluding the effects of stray capacities and leakage resistance in the bridged-T circuit, the frequency of oscillation is determined by the values of C_6 , C_7 , C_8 and R_6 through R_{13} . The output from the oscillator is taken from the cathode of the first cathode follower and is coupled to the grid of a 6V6 cathode follower, which serves as an isolation stage between oscillator and load. The potentiometer R_{13} in the grid circuit controls the output voltage.

Output from the unit is taken across the 6V6 cathode resistor, R_{19} , through the coupling condenser, C_{11} . At 100 cycles the value given in Fig. 1 for condenser C_{11} is suitable for working into load impedances as low as 20,000 ohms. Lower-impedance loads will cause an output voltage drop in excess of 30 per cent. For low audio frequencies and loads between 500 ohms and 20,000 ohms, excessive loss of voltage can be avoided by substituting a 25- μ fd. electrolytic at C_{11} .

A 4-watt 115-volt lamp, I_1 , is used in the cathode-to-cathode feed-back loop. The bulb regulates the feed-back current and thus tends to keep the output voltage constant throughout the range. (Although the original circuit called for a 3-watt 115-volt lamp, the 4-watt bulb gave better performance in our particular set-up; the output voltage is constant within 2 db. over the entire range of the oscillator, while with the 3-watt lamp the variation increased to 3 db.) Potentiometer R_2 provides the means for adjusting the operating conditions to give minimum waveform distortion.

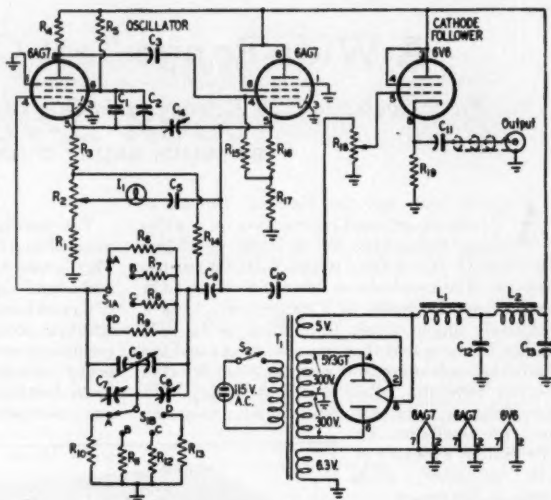
The 50-cycle to 500-kilocycle band is covered in four ranges. A low-loss two-pole four-position ceramic switch, S_1 , is used for band-switching.



This RC oscillator covers the unusually wide range of 50 cycles to 500 kilocycles with good waveform and practically constant output. Complete with power supply, it is housed in an 8 x 10 x 7-inch steel cabinet.

Fig. 1—Circuit diagram of the wide-range oscillator.

- C_1 — 0.002- μ fd. mica.
 C_2 — 40- μ fd. 150-volt electrolytic.
 C_3 — 1- μ fd. 400-volt paper.
 C_4, C_7, C_8 — 45- μ fd. ceramic trimmers (Centralab Type 822-BN).
 C_5 — 100- μ fd. 150-volt electrolytic.
 C_6 — 500- μ fd.-per-section dual variable.
 C_9, C_{10}, C_{11} — 0.1- μ fd. 400-volt paper.
 C_{12}, C_{13} — 40- μ fd. 450-volt electrolytic.
 R_1 — 1000 ohms, 1 watt.
 R_2 — 2000-ohm wire-wound potentiometer.
 R_3, R_{16} — 68 ohms, 1 watt.
 R_4, R_{17} — 5000 ohms, 10 watts.
 R_5 — 27,000 ohms, 2 watts.
 R_6 — 15,000 ohms, $\frac{1}{2}$ watt, 10%.
 R_7 — 0.18 megohm, $\frac{1}{2}$ watt, 10%.
 R_8 — 1.8 megohms, $\frac{1}{2}$ watt, 10%.
 R_9 — 20 megohms, $\frac{1}{2}$ watt, 10%.
 R_{10} — 2700 ohms, $\frac{1}{2}$ watt, 10%.
 R_{11} — 39,000 ohms, $\frac{1}{2}$ watt, 10%.
 R_{12} — 0.33 megohm, $\frac{1}{2}$ watt, 10%.
 R_{13} — 3.3 megohms, $\frac{1}{2}$ watt, 10%.
 R_{14}, R_{15} — 1.0 megohm, 1 watt.
 R_{18} — 0.5-megohm potentiometer.
 R_{19} — 2200 ohms, 1 watt.
 L_1, L_2 — 10-hy. 50-ma. chokes.
 I_1 — 4-watt 115-volt lamp.
 S_1 — Single-section 2-pole 4-position ceramic.
 S_2 — S.p.s.t. toggle switch.



T_1 — 300-0-300 v., 50 ma.; 5 v., 2 amp.; 6.3 v., 3 amp.
 Output Jack — Shorting-type microphone jack (Ampenol 75-CL PC1M).

Resistance values of R_6 through R_{13} were so chosen that each step covered a 10-to-1 frequency range. Padders C_7 and C_8 fix the minimum capacity of the tuning condenser. These padders serve a dual purpose: (1) to eliminate erratic oscillation at the minimum capacity end, and (2) to provide a means for adjusting the frequency at the high end of the low-frequency range.

The ceramic trimmer, C_4 , connected between the 6AG7 cathodes, has little effect at the lower frequencies, but to maintain the 10-to-1 frequency ratio on the high range this trimmer is

essential. Apparently it has a neutralizing effect which is sufficient to balance out the stray capacities that limit the high-frequency range. The primary purpose of this trimmer in the original circuit was to maintain the output voltage constant over the 20-cycle to 2-megacycle range. We noted that in our unit it also could be used to adjust the upper end of the high range without affecting the output appreciably.

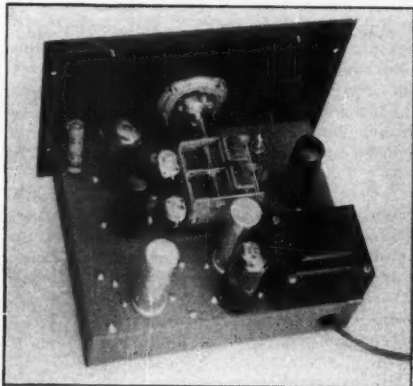
The power supply is in no way unusual. A two-section choke input filter is provided to insure good filtering. The components were confined to the extreme rear of the chassis and shielded wire was used for the filament wiring. These were precautionary measures taken to confine the a.c. field and thus to prevent the power frequency from "pulling" the oscillator frequency at the low audio end, a point mentioned in the NBS release.

Construction

As shown in the photographs, the complete unit is housed in a standard 8 × 10 × 7-inch steel cabinet. The chassis measures 7 × 9 × 2 inches. The arrangement of the individual components of the oscillator should be evident from the photographs.

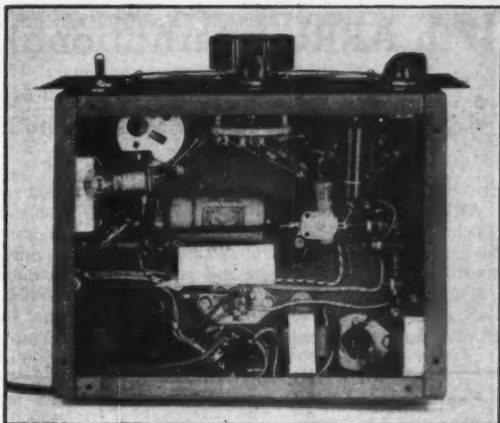
The power transformer, T_1 , is submounted at the rear of the chassis. The can-type electrolytics, C_{12} and C_{13} , are mounted above the chassis while the filter chokes are placed below.

The main tuning condenser, C_6 , must be well insulated from ground. Small porcelain stand-offs or a slab of polystyrene or bakelite sheet will do the trick. An insulated coupling must be used between the condenser and dial. The frequency-determining resistors, R_6 through R_{13} , are



In this rear view of the oscillator the metal tube on the left is the first cathode follower. The tuning condenser and its trimmers are mounted on a piece of bakelite to insulate them from ground and the condenser is driven through an insulated coupling. The control shaft of the waveform potentiometer, R_2 , is visible on the chassis to the right of the tuning condenser.

Bottom view of the wide-range test oscillator. The filter chokes are at the bottom right. The frequency-determining resistors are supported by the ceramic range switch at the top center.



mounted on a ceramic switch, S_1 , which is located under the tuning control. These resistors must have the designated values or the frequency ranges will differ from those given. Resistors of 10 per cent tolerance are satisfactory.

On the front panel there are four controls and the output terminal. A National type SCN dial is used for tuning. In the lower corner of the panel is a toggle switch, S_2 , for the a.c. line. The band-changing switch is placed under the tuning knob. At the lower right is the attenuation control, R_{18} . Just above this control is the output connector. These controls fasten the panel to the chassis.

Calibration

Adjustment and calibration are relatively simple if test equipment is available. An oscilloscope is necessary for adjusting the waveform and for calibrating the low-frequency ranges. Aural methods are not too reliable. A receiver that covers the broadcast band and WWV also is needed.

Potentiometer R_2 is the only adjustment for waveform. This adjustment can be made at 60 cycles and will hold for the higher frequencies. Connect the output of the oscillator to the vertical plates of the 'scope and, with the range selector in position *D* and the tuning condenser nearly at maximum, adjust the internal horizontal sweep in the 'scope for synchronization. R_2 should be adjusted to give a good sine wave. In case the 'scope has no internal sweep, an external source of 60 cycles from a filament transformer can be used as the horizontal sweep, and the tuning condenser of the test oscillator adjusted until a single-loop Lissajous pattern appears. The pattern will resemble either a circle, ellipse, or straight line. Adjustment of R_2 will affect the symmetry of the loop about its own axes and the distortion will be least when the loop is perfectly symmetrical.¹

¹ A discussion on the use of an oscilloscope for analyzing distortion in audio waves can be found on pages 293-294 of the 1950 Handbook.

Adjusting the ranges for proper coverage is the next problem. The four used positions of S_1 are labeled *A, B, C, D*, to correspond with the lettering on the National SCN dial scales.

The ranges are as follows:

Range	Frequency
<i>A</i>	50 to 500 kilocycles
<i>B</i>	5000 to 50,000 cycles
<i>C</i>	500 to 5000 cycles
<i>D</i>	50 to 500 cycles

The tuning condenser should be set approximately 10 degrees from minimum capacity with selector switch S_1 on range *D*, and trimmers C_7 and C_8 should be set to full capacity (this will occur when the two soldered spots on the face of the trimmer are next to each other). Connect the output of the oscillator to the vertical plates of the 'scope. With the internal sweep in the "off" position, feed the audio output of a receiver tuned to WWV to the horizontal plates. WWV sends either a 440- or 600-cycle tone, so make sure that the adjustment is made during the 440-cycle period. Then adjust trimmers C_7 and C_8 a little at a time, keeping their capacities about equal. When the oscillator output is 440 cycles, a single-loop Lissajous figure will be seen on the screen of the 'scope. This adjustment sets the high end of range *D* and at the same time fixes ranges *B* and *C*.

Most 'scopes are useless for calibration in the r.f. range. A simple yet effective method for adjusting the high end of range *A* utilizes a receiver calibrated over the broadcast band. For preliminary adjustments, the 500-ke. intervals starting at 1 Mc. are needed. However, the 10-ke. points from 600 ke. and up will be useful later on for calibration. Broadcast stations can be used to spot frequencies on the dial. By interpolation, the 10-ke. points can be marked with reasonable accuracy. A 10-ke. multivibrator would be a great asset for calibration, but the station spotting method will give excellent results. After calibrating the receiver, the output of the oscil-

(Continued on page 86)

17th ARRL International DX Competition

**C.W.: Feb. 9th-11th and March 9th-11th;
'Phone: Feb. 16th-18th and March 16th-18th**

It's time again to ready your station for the ARRL International DX Competition, to be held in February and March of this year. This contest, the seventeenth of its kind, gives an opportunity for all Canadian and continental U. S. operators to add new countries to their DX totals, other stations to fill in for their WAS and WAVE awards, and everyone to match DX op-

Explanation of DX Contest Exchanges		
Exchanges	RST Report of Station Worked	Three-Digit Number, Representing Power Input
Sample (c.w.)	579	150
Sample ('phone)	57	500

erating skill with other operators in his country or ARRL section. But, whether you have 9 or 9 hundred watts, whether you work 2 or 2 thousand stations, whether you have a wire out the window or a 7-element antenna, you can have a whale of a lot of fun in this annual event.

As in the past, two week ends are devoted to c.w. operation and two to 'phone operation, giving everyone an opportunity to participate in four week ends of hot activity. The rules are practically the same as those of last year, except for three clarifications. Crossband work is now specifically prohibited. For the foreign participants, the addition of Newfoundland and Labrador to Canada makes available 9 Canadian call areas (VO, VE1-VES) instead of the 8 heretofore. VO stations, of course, will now work foreign stations, instead of Ws and VEs as they did prior to 1950. And it is now definitely stated that DX Contest reports become the property of ARRL and cannot be returned.

Entries by multiple-operator stations are encouraged and will be listed, but only single-operator stations will be eligible for the special certificate awards offered to the top 'phone and c.w. scorer in each country and ARRL section. Multiple-operator scores can be grouped with single-operator scores in club competition, however, and a handsome gavel is offered to the club with the highest aggregate score. Within a club, single-operator entries can compete for the "club-certificate" awards given to the highest c.w. and 'phone scorers.

If you're new to the DX Contest, it won't take you long to catch on. During the contest period, stations outside of the U. S. and Canada will call "CQ W/VE" or "CQ TEST" and will exchange numbers as shown in the sample elsewhere on these pages. If the input is 250 watts, your

number is 250. If you run only 75 watts, use the number 075. Full kilowatts have a choice — they can use either 000 or 999. If your input is different on different bands, change the number to approximate the input figure, but don't bother about 0.1 per cent accuracy on any band — the usual approximation is adequate.

You can try a "CQ DX" or "CQ TEST" if you're a W or VE, but past experience shows that this pays off *very seldom*. On c.w., Ws and VEs have quotas but this doesn't apply to 'phone. Keep your log carefully, and send a copy of it, in the form shown, to ARRL. Free contest forms are available from ARRL Headquarters, West Hartford, Conn., upon request. Get your station working at top efficiency, make no social commitments for the important week ends, read the rules to acquaint yourself with the pattern, and then get set for more DX per kilocycle per hour than your poor crystal filter and eardrums have ever had to cope with before.

Rules

- 1) **Eligibility:** Amateurs operating fixed amateur stations in any and all parts of the world are invited to participate.
- 2) **Object:** Amateurs in the continental U. S. and Canada will try to work as many amateur stations in other parts of the world as possible under the rules and during the contest periods.
- 3) **Conditions of Entry:** Each entrant agrees to be bound by the provisions of this announcement, the regulations of his licensing authority, and the decisions of the ARRL Award Committee.
- 4) **Entry Classifications:** Entry may be made in either or both the 'phone or c.w. sections: c.w. scores are independent

CONTEST TIMETABLE

C.W. Section:

Time	Starts	Ends
GCT	Feb. 9th 2400	Feb. 11th 2400
AST	Feb. 9th 8:00 P.M.	Feb. 11th 8:00 P.M.
EST	Feb. 9th 7:00 P.M.	Feb. 11th 7:00 P.M.
CST	Feb. 9th 6:00 P.M.	Feb. 11th 6:00 P.M.
MST	Feb. 9th 5:00 P.M.	Feb. 11th 5:00 P.M.
PST	Feb. 9th 4:00 P.M.	Feb. 11th 4:00 P.M.

The second period of this contest starts at these same hours Mar. 9th.

The second period of this contest ends at these same hours Mar. 11th.

'Phone Section:

GCT	Feb. 16th 2400	Feb. 18th 2400
AST	Feb. 16th 8:00 P.M.	Feb. 18th 8:00 P.M.
EST	Feb. 16th 7:00 P.M.	Feb. 18th 7:00 P.M.
CST	Feb. 16th 6:00 P.M.	Feb. 18th 6:00 P.M.
MST	Feb. 16th 5:00 P.M.	Feb. 18th 5:00 P.M.
PST	Feb. 16th 4:00 P.M.	Feb. 18th 4:00 P.M.

The second period of this contest starts at these same hours Mar. 16th.

The second period of this contest ends at these same hours Mar. 18th.

LOG, 17th A.R.R.L. INTERNATIONAL DX COMPETITION

Sheet 1 of 1

Call ARRL Section or Country

Date & Time	Station Worked	Country	Record of New Countries for Each Band					Serial Numbers		Points
			3, 5	7	14	27	28	Sent	Received	
Feb. 17 0005 GCT	VP9E	Bermuda			1			56375	57080	3
Feb. 18 1300	PA0GN	Netherlands					1	58375	47075	3
1306	G6CL	England					2	58375	46150	3
1345	PA0RA	Netherlands					2	58375	50080	3
2030	LU7AZ	Argentina					3	58375	57750	3
2310	VP9X	Bermuda			1			57500	56050	3
Mar. 17 1020	ZL1MR	New Zealand			2			58500	58075	3
1035	VK2TI	Australia	1					47500	46100	3
1105	VK2RA	Australia	1					46500	45100	3
1421	PA0LQ	Netherlands					3	45375	57100	3
Mar. 18 0925	TF3EA	Iceland			3			57500	57050	3
1245	G2MI	England					3		46125	2
1255	G3KP	England					3	56375	57100	3
1350	G2MI	England					3	57375		1
1430	G5BA	England					3	46375	55100	3
2320	KZ5AW	Canal Zone			4			58500	58500	3

Sample of report form that must be used by foreign c.w. and all 'phone participants.

of voice scores. Entries will be further classified as single- or multiple-operator stations. Single-operator stations are those at which one person performs all the operating functions. Multiple-operator stations are those obtaining assistance, such as from "spotting" or relief operators, or in keeping the station log and records.

5) **Contest Periods:** There are four week ends, each 48 hours long: two for 'phone work and two for c.w. The c.w. section starts at 2400 GCT, Friday, February 9th and Friday, March 9th, ends 2400 GCT, Sunday, February 11th and Sunday, March 11th. 'Phone section starts at 2400 GCT, Friday, February 16th and Friday, March 16th, ends 2400 GCT, Sunday, February 18th and Sunday, March 18th.

6) **Valid Contacts:** In the 'phone section, all claimed credits must be made voice-to-voice. In the telegraph section, only c.w.-c.w. contacts count. Crossband contacts may not be counted.

7) **Exchanges:** Each participating operator will use three figures to represent the approximate transmitter power input. C.w. contestants will exchange six-figure numbers, each consisting of an RST report plus the three "power" numbers. (Examples are given in the sample log.) 'Phone contestants will exchange five-figure numbers, each consisting of a Readability-Strength report plus the three "power" numbers. If the input power varies considerably on different bands, the "power" number should be changed accordingly.

Sample of report form that must be used by W/VE c.w. participants. When a station is worked for less than the maximum number of points allowed (as for example the contact with G2MI shown at right), the additional contact to make up the points not earned in the first contact should be entered at the bottom of the sheet. Canadian entrants should allow two blocks for each country, but may record no more than six contacts therein. A separate set of sheets should be used for each band.

8) Scoring:

a) **Points:** 1 point is earned by a W (K) or VE/VO station upon receiving acknowledgment of a number sent, and 2 points upon acknowledging a number received. Two points are earned by any other station upon receiving acknowledgment of a number sent, and 1 point upon acknowledging a number received.

b) **Final Score:** W (K) and VE/VO stations multiply total

LOG, 17th INTERNATIONAL DX COMPETITION

Call ARRL Section
Band 28 Mc. Sheet 1 of 5

	Station Worked	Date	Time (GCT)	Number Sent	Number Received
Netherlands	PA0GN	2/10	1300	580450	479075
	PA0RA	2/10	1345	569450	579080
	PA0LQ	3/10	1421	459450	578100
England	G6CL	2/10	1306	589450	469150
	G2MI	3/11	1245		469125
	G3KP	3/11	1255	569450	579100
	G5BA	3/11	1430	469450	559100
Argentina	LU7AZ	2/10	2030	589450	579750
	G2MI	3/11	1350	579450	

points earned under Rule 8(a) by the number of countries worked on one band plus the number of countries worked on each other band. All other stations multiply total points earned under Rule 8(a) by the sum of the number of W (K) and VE/VO licensing areas worked on one band plus the number of W (K) and VE/VO licensing areas worked on each other band.

Countries will be those on the ARRL Countries List. There are 19 licensing areas: 10 in the United States, 9 in Canada (VO, VE1-VE8).

9) *Repeat Contacts*: The same station may be worked again for additional points if the contact is made on a different frequency band. The same station may be worked again on the same band if the complete exchange for a total of three points was not made during the original contact on that band.

10) *Quotas*: The maximum number of points per country per band which may be earned by W (K) stations in the c.w. section is 12, and contacts made on the same band with the same country after the quota is filled will not count. Thus complete exchanges with 4 stations in one country on one band fill the band quota for that country. The maximum number of points per country per band which may be earned by VE/VO stations in the c.w. section is 18, and contacts made on the same band with the same country after the quota is filled will not count. Exchanges with 6 stations in one country on one band are thus permitted Canadian participants. There is no quota for stations in the c.w. section outside of the U. S. and Canada. There is no quota for any station in the 'phone section.

11) *Reporting*: Contest work must be reported as shown in the sample form. Each entry must include the signed statement as shown in that example. Contest reports must be mailed no later than April 20, 1951, to be eligible for QST listing and awards. All DX Contest reports become the property of the American Radio Relay League. No contest

reports can be returned.

12) *Awards*: To document the performance of participants in the Seventeenth ARRL International DX Competition, a full report will be carried in QST. In addition, special recognition will be made as follows:

a) Special certificates will be awarded to the 'phone and to the c.w. winners in each country (as shown in the ARRL Countries List) and in each of the 72 U. S. and Canadian ARRL sections (see page 6 of this issue) from which valid entries are received. Only single-operator stations will be eligible for these awards.

b) A suitable certificate will be awarded to the operator making the highest single-operator 'phone score in each ARRL-affiliated club, provided the club secretary submits a listing of a minimum of three 'phone entries by bona fide resident members of such club, and provided further that these scores are confirmed by receipt at ARRL headquarters of the individual contest logs from such members. The highest single-operator c.w. scorer in each club will be awarded a certificate under the same conditions.

c) ARRL will award a gavel to the affiliated club submitting the greatest aggregate 'phone and c.w. score by bona fide resident club members, whether single- or multiple-operator entries, provided such scores are confirmed by receipt at ARRL headquarters of the individual contest logs from such members.

13) *Judges*: All entries will be passed upon by the ARRL Award Committee, whose decisions will be final. The Committee will void or adjust entries as its interpretation of these rules may require.

14) *Disqualifications*: Off-frequency operation (as confirmed by a single FCC citation or advisory notice or two ARRL accredited official observer measurements) will disqualify. Low tone reports in logs will also be considered by the ARRL Award Committee as grounds for disqualification.

SUMMARY, 17th A.R.R.L. INTERNATIONAL DX COMPETITION

.....Entry Call..... ARRL Section.....or Country.....
(C.W. or 'Phone)

Name.....Address.....

Transmitter Tubes.....

Receiver.....Antenna(s).....

(Logs from W, VE or VO show number of foreign countries worked. Logs from other countries show number of U.S.A. and Canadian call areas worked.)

Bands	3.5 Mc.	7 Mc.	14 Mc.	27 Mc.	28 Mc.	Total
No. Countries QSOed	1		4		3	*8
Number of Contacts						15

Number of Different Countries Worked..... Number of Hours of Station Operation.....

Assisting Person(s): Name(s) or Call(s).....

45 8 360
(Points) (Multiplier) FINAL SCORE

Participation for Club Award in the.....
(Name of Club)

I certify, on my honor, that I have observed all competition rules as well as all regulations established for amateur radio in my country, and that my report is correct and true to the best of my belief. I agree to be bound by the decisions of the ARRL Award Committee.

Operator's Signature

* Figure in this box is multiplier.

Sample of summary sheet that must accompany all reports.



How's DX?



CONDUCTED BY ROD NEWKIRK,* W9BRD

How:

At any good DX gab session sooner or later there comes up for discussion some of the stand-out DX yarns that have appeared in recent *QST*s or those of years gone by. Well, if conditions are mighty slow and you've caught up on your *QSL*s, statistics, rebuilding, TVI chasing, et al, you might investigate the following bibliography for a possible chuckle or two. Some of them are classics that mellow with age and even bear rereading.

We mean tales like W3EEW's "90 Plus" (June, '39) and W1EEK's "Strongheart Boys in the Pacific" in January of the same year. These two apply particularly to DXing but "Blonde QRM" (March, '40) by W8MXT can show any active ham the length to which he may have to go in curing a bad case of modern TVI. (A remedy, incidentally, that one can rarely employ more than once.)

Postwar DXing was never more adequately analyzed than in ex-W8KPB's "Postwar DX, Where Is Thy Ring?" (November, '46) wherein "out walked a little fellow with something called a 750T" which, said a man named Jones, "makes a good buffer."

This subject is ultimized by WIDX's "Paradise Regained" (December, '47), and "I Just Put Up Another Antenna" (February, '47) by W6SN should be consulted by any neophyte about to embark on the long trek from his first dipole to the final reversible rhombic.

There are many others including profound works by W1OU and W2GVZ which bring us to more contemporary pieces that have caused much commentary pro and con such as "Underground Antennas" (March, '48) by W8EFW and "The Invisible Antenna" (February, '49) of W6ZMZ.

Enough browsing, then. Let's pick up the subject of 1951 DX. . . .

What:

Or perhaps we should say let's wrap up 1950's DX. Statistically speaking, the year wasn't too bad, but on a conditions basis — ugh! The new year isn't going to be a bed of roses, either, if predictions bear out, although we suppose we may look forward to our usual spring renaissance with the old anticipation. Meanwhile, we'll just have to do the best we can. On twenty phone, HC2JR is doing about as well as anybody: EAS 8AP (14,124) 8AB (14,307), CRs 7AH (14,194) 9AB (14,134), OE13EG (14,193), YJ1AA (14,355), MD7HV (14,290), SV5UN (14,184), (reactive), ZM6AA (14,306), 3V8BB (14,174), UA3AF (14,186), UB5BG (14,165), HZ1AB (14,195), VP8AP of South Orkney Isles (14,098), VK9JC in the Admiralties (14,370), KC6WC (14,205), VRs 1B (14,240) 1C (14,180) 5GA (14,165), FASCF (14,347) and ZS9P (14,155) — KS4AI scraped up AR8AB, W89AH, SV9WX, VR1E, KJ6AJ and Z83O while using the mike and John DeMyer's log is worth keeping an eye on: VR1s F, A, 15ZC, XZs 2KN and 28Y were

heard on the high end — W8NOH added OX3GD and CS3AA by means of voice.

As for 14-Mc. c.w., W3JYS has been doing well: GD3UB (14,100), FF8JC (14,032), EK1AO, EABBE (14,109), HR1DF (14,080 t8), CT3AA (14,069), TF3SF (14,072), VQ3SS (14,125), YS1O (14,020), VP1AA, VP1NW (14,038 t8), M13AB (14,130) and UB5KAG (14,075) — CR5AD, EA6AF, VQ4AO and ZK1AZ all *QSL*, notes W9ABA, who has been pursuing, among others, VU2CX (14,105) — ET9X is W6EJ in disguise, finds W6AM. This Addis Ababa entry frequents 14,050 with a T9 tone — Looking for Idaho, Oregon and Utah is friend HR1AT (14,016), according to W1FPS — HA5FA (14,019), VP3TF (14,022), CR7CK (14,048), CT3AB, ZM6AK (14,047), VP8AK (14,009) and VR1F enhance W7JYZ's records — LA4QC (14,031) represents a combined Norwegian-British-Swedish Antarctic expedition and operates from Queen Maud's Land, we are told by W1LHA — Conditions have been so good that it took JA2FM two months to work two Ws, those being 3LOE and 5FNA. But Cal did capture FK8AH, FK8AI, YJ1AB, ZM6AK, VQ8CB, FO8AC, VK1PG, C9AA in Manchuria, XU8SR and VU7AH in India — Choicest at W9DMF was FQ8AE (14,070) while VK5BS put away PK6VK (14,010) on Netherlands Timor — W6GPB can't complain too much with PJ5RE, C3KS, FK8AA, VP7NM (14,020), 3A2AB (14,005), 4X4RE (14,010), VP8AJ (14,030) and a CT3 in his log — Three stitches in his sending paw didn't slow down W5FXN appreciably: CN8EJ (14,015), TA3s FAS (14,032) GUVU (14,032), HZ1KE (14,100), SP1CM (14,100) and LU3ZB (14,080). Jim was FQ8AE's first W5 QSO. Others still being sought by W5FXN are EABAB (14,055), VK1s YG (14,030) YM (14,115), VS7AQ (14,012) and OE1CD (14,039) — W9FID's new anti-TVI rig accounted for LX18I, CS3AA (14,115), KV4AC, PJ1UF, VP9UU and TY5EH (14,055) while W6ALQ shagged 3A2AB, KM6AK, VP7NU, YU1CAG, KX6AA (14,095) and KS4AC. Those with stringent antenna space will be interested to know that Max does his DXing with a quarter-wave vertical operated against ground; a beam is under construction, however — VQ4HK, CE7ZJ, V81DC, FQ8AC and VPSAI (14,008) felt the sting of W2CTO's folded dipole and W8YGR collared VQ3KIF (14,070), CN8EM (14,180), VP9D (14,165) and an HR1 — ZL3AB hears from VK1HV of Heard Isle



* DX Editor, *QST*. Please mail reports of DX activity to W9BRD's home QTH: 1517 Fargo Ave., Chicago 26, Ill.

(14,130) that Ws aren't tuning up the band high enough. The VK1 operates crystal-controlled on that one frequency and has been finding QSOs with difficulty. With WAE diploma No. 11 on the wall, W2QHH worked GD3GBG (14,050), ZS8MK (14,018), YN3CP (14,019), PK4DA (14,105) and VQ4KRL (14,021). The No. Calif. DX Club's DXer has the gang atwitter over items like CRSAC (14,006), CR6AW, GC2ASO (14,085), VQ4BY (14,063), UF6AC (14,060), KJ6AN, PK7NL, TF3MB (14,128), YI3DYN (14,049) and ZS7C.

Forty could have been better in 1950 but it certainly could have been a heckuva lot worse, too. Spitzbergen is one of the hottest contemporary catches on the band in the form of LB9AC (7010) as hooked by G3ATU. At W3JYS there was VP8AJ (7002), VP8AI (7004) and FM8AD (7012) while W2QHH tucked away GC4LI (7013), CT1AL (7058), 3A2AB (7001), YO3RI (7006) and EA9AP (7006). W6ZZ has HK5HN (7020) and FM7WF (7032) wrapped up and W8YGR mentions working HC2IH (7028) and HK4DP (7030). Another one to hook MX1AF (7020) is W6HZE. HB1FK in a plane over Newfoundland was a natty number for W3JAK. Flav also reeled in VP9s BB YY, LA8RB, OHs 2TM 2WX, UA3CK and HA5FA.

Even ten has been showing encouraging signs of life, on 'phone especially. VR1E (28,417), in the British Phoenix group, KB6AR (28,792), KV4AQ (28,802), CRs 4AC (28,120) 6AQ (28,433), CT3AV (28,308) and MP4BAB (28,243) came back to HC2JR. W2ZVS worked some of those as well as ZBs 1AJX 1IH 1AK, ZEs 1JE 1JM 2JK 2JV 2KH, CRs 6AV 6AQ, OQ5s BR DZ, VP5 1WS 2GG, VQs 2DR 4RF, ZS7C, EK1AQ, JA2DJ, HZ1KE, M13XX, ZD4AH, HI6EC, FA3JY, EA8AX, OX3GD and Sicilian IT1AXV. ZC6UNJ, HR1RL, CR7AH, VQ2HW, ZD4AX, OQ5CL and HH2JC made W8NOH contented while W4MKB made it 136 on the band with VR1E. 75 watts of n.f.m. netted VE2AHL contacts with ZP5IB and ZEEKI and W6FID's first 28-Mc. A3 efforts resulted in UA1AR and TG9AD QSOs. W0VIP used to chat regularly with ACs 3SS and 4YN back when he was "J2" but he'd swap his receiver for a crack at them from Fergus Falls. ZS9F is Bud's newest. John DeMyer has us watching for FL3RT (28,330).

Ten-meter c.w. stock soared on the ticker after a few CQs from VQ9AA (28,002) as worked by W2QHH, W1APU, WINLM, W6GPB and many others. Z3JJJ (28,008) and ZS3K (28,005) were flagged down by W3JYS, W1APU, W2QHH and W6GPB while WIRGY raised FD3RG and CT3AB. WINLM has been stalking an EC2A (Corsica?) and W4KCK/KW6.

Here's what W4BRB has to say about our old friend eighty: TI2PZ and HR1AT (3515) are welcome additions, the latter making No. 82 for Gene on this band. CN8MI (3512) made a brief appearance during the 88 but was snowed under the QRM. KP4HU is reported to be skedding VS7KR (3515) but there's no info on results as yet. Winter DX prospects for eighty seem to be shaping up nicely, one W1 having heard G3CKL, FA8BG, ZL1HM and the usual North Americans coming through on 3510 at the same time — 0130 EST.

Where:

Although it may appear as if the QTH department, too, has been hit by rationing, we presume its undernourished men to be resultant of the Christmas rush. MX1AF and ZD7B might well have been saved for the April issue but then one never knows, does one? By the way, when we list a station as "QSL via ARRL" this does not necessarily indicate our voucher on its behalf; if said station's operator

SARL DX Contest

The c.w. section of the SARL DX Contest will be held from 0001 GCT Jan. 20th to 2400 GCT Jan. 21st. The 'phone section will run from 0001 GCT Jan. 27th to 2400 GCT Jan. 28th. All contest work will be limited to the 40-, 20-, and 10-meter bands; cross-band operation not permitted. Work ZS stations only and score 5 points per station worked, with a multiplier of total number of ZS divisions worked on all bands.

Serial numbers to be exchanged will change with each contact. With the first station worked your number will be the RST (RS) report plus any three figures. On the second contact your number will be the report plus the last three figures of the first number received. On the third contact your sent number will be the report plus the last three figures of the second number received, etc.

Sent logs to the Contest Committee, P.O. Box 3911, Cape Town, South Africa, to arrive by April 30, 1951. Log must show date and time (GCT) of contacts, band used, call sign of station worked, numbers sent and received. An accompanying analysis must show the number of ZS call areas worked, number of contacts, number of points, and number of bands worked. Also include a statement that you have abided by the rules of the contest and will abide by the decision of the Contest Committee Chairman.

Certificate awards to top scorers who are members of an IARU society.

gives this instruction over the air we are willing to spread the word hereby, meanwhile hoping to hear from him directly in this regard. Furthermore, only in the special cases catalogued in this department should outgoing W/V/E cards be sent "via ARRL" to DX points. Others cannot be accepted and the appropriate foreign bureau must be used.

CR7IV	P. O. Box 595, Beira, Mozambique
FM7WF	(QSL via W6ARI)
FO8AG	Makatea Island, via Tahiti
FO8AI	Air Tahiti, Papeete, Tahiti
FQ8AE	Box 6, Fort Lamy, Tchad, F. E. Africa
HZ1JB	(QSL via RSGB)
HZ1JD	(QSL via RSGB)
IT1SEN	Costantino Nigra 15, Palermo, Sicily, Italy
ex-J8AAL	F. H. Finney, W3MOR/9, Forest Trailer Park, Park Ridge, Ill.
LA1AD	University of Oslo, Blindern, Norway
MX1AF	(QSL via ARRL)
SP1CM	(QSL via PZK)
TI2CR	Ricardo Araya, Baraico Keith 1268, San Jose, Costa Rica
VQ2HW	N'Kana, Northern Rhodesia
VQ4KRL	Box 3956, Nairobi, Kenya
VR1F	Don Schroder, % PAA, Canton Island, Pacific
	British Phoenix Group
YI3DYN	(QSL via RSGB)
ZC4TF	Box 481, Nicosia, Cyprus
ZC6UNJ	AP0 206b, % PM, New York City, N. Y.
ZD7B	Gouvernement Palais, St. Helena Island
ZK1AB	C. D. Cunnold, Box 41, Raratonga, Cook Islands
ex-ZK1AS	(QSL to ZL4LE)
ex-ZM6AC	(QSL to ZL4LE)

Keeping what we hope are New Year's resolutions, we have donors W1APU, W2s AKX CJX CTO JBL SUC ZVS, W4MKB, W5FXN, W6s AM ZZ, W7JYZ, W8NOH, W9CFT, CN8EG, JA2FM, VK5BS and the No. Calif. DX Club.

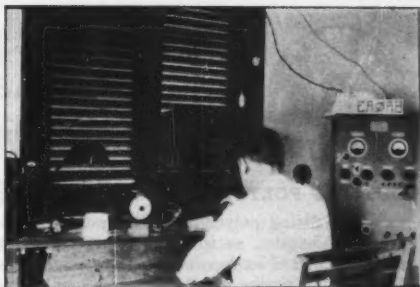
Members of the Jamaica Amateur Radio Association are: (front, from the left) VP5AR, VP5FR, VP5DX, president VP5EM, VP5AK, VP5JC; (rear) VP5AD, VP5AM, VP5MU, VP5RS, VP5AO, VP5MU. (Photo courtesy VP5AK)



QST for

Tidbits:

The Ministry of Colonies, Timor, tells W9TRD that there are no licensed radio amateurs in Portuguese Timor at present and "only one in the experimental stage." That latter may be officialese for rebuilding and could be CR10AB As you are already possibly well aware, Sicilian stations now sport the prefix IT1 in equivalence to Sardinia's IS1. Only catch is that Sicily is not considered as separate from Italy on the Countries List PK6NL told W6GPB that Biak's prefix was really PK7 and that hereafter he would go as PK7NL. Also, Joe heard from OQ5DF that the latter had a new supply of cards with which to dent a mounting backlog For all the boys who have been peeking under each speck of QRM in search of Spitzbergen, G3ATU has news. LB9AC, operated by a four-man assemblage, will be active on Hope Island, Spitzbergen, at least until July, 1951. They won't see a boat until then. It's a weather station deal For the Morale-Mending Department, W3MZE recommends a card from ZD2G, some two years on the way KZ5ES has been stalemated on his intended ham venture to Cocos Island (TI9), as Costa Rican officials have not waxed overly enthusiastic The Vatican has been having such a time with an HV1A impersonation that they have a form letter rigged up for incoming verities. W8DAW received his without much delay and one line of the text stands out: ". . . the Government of Vatican City has never given licenses to radio amateurs." Gee, whis VQ9AA is manned by operators Jim and Bob at the Royal Naval Signals Station at Seychelles and 500 watts is soaked up and distributed by a long wire. Wis APU and NLM were neck and neck with this info Weary of handling juicy-DX QSLs addressed to other stations, W1RWS rolled



A much-sought-after DX contact is one with Angel Margallo's station, EA9AB, of Santa Isabel, Spanish Guinea. The neat rig runs 100 watts input. (Photo courtesy W6AM)



Proprietor of one of the more consistently active Okinawa stations, Capt. John F. Buzarak of the Signal Corps here relaxes at the controls of KR6CA. W2KZZ is his Stateside call. (Photo courtesy W6GYH)

up his own DXCC total with an 807 doubling to 20 K54AI is now up to 101 countries after a short session on 'phone. Ralph finds that fewer of his QSOs are broken up by horners-in while he works A3 DX. "There is good reason for rare DX stations going 'phone. They just get good and tired of the tactics on the c.w. bands, especially 20 meters. In most cases they can get out of W QRM on 'phone and naturally work as they please." Hence both K54AC and K54AI rarely press a key anymore, being on voice 98 per cent of their operating time "It is very difficult for me to get my cards from the SV QSL bureau as I very seldom get to Athens," writes SV9UN. So you had better use the SV9UN address as follows: % UNSCOB, Mediterranean Hotel, Salonika, Greece. This is almost identical to the one specified in last month's "Where" section, both being okay Commemorative stamps upon your QSL may reward you with a fast air mail reply from VR2BW, hints W5FXN Ex-J8AAL has lately been signing W4MOR/9 and still has his Korean log if anyone should still need his QSL. J8AAL was active at Kimpo between 4 August and 1 October, 1947 VK1HV is interested in QSO-ing Sacramento W6s as his YL is on a prolonged visit there. VK1s PG and YG will continue active on Heard Island until March of 1951, says W8DFQ ZL3AB, who rolls through like the proverbial tumbabrix, has been appointed DX Editor of *Break-In*, official organ of the

NZART "Although O41BN may be the highest ham in the world, I will run him a close second. My station is at 13,781 feet above MSL." This from Royal F. West who was awaiting assignment of his new CP call letters near La Paz. He will use a converted Bendix TA-12 transmitter and an S40-A receiver on 10 and 20 meters. His mail QTH: Cie. Aramayo de Mines en Bolivie, Casilla 674, La Paz, Bolivia ZL4LE has just shipped a stack of ZM6AC and ZK1AS cards through bureaus which should take care of all outstanding debts W8NOH's new beam got a write-up in a local daily and Louis did himself proud. All favorable publicity of this type is good for the game. Due to a job switch to nights, W8NOH is cleaning up on daytime DX CNSEG worked ZC4TF and then visited him a month later in Nicosia. Steve is making this an awfully small world W5FXN overheard VP8AP trying to straighten out the VP8 confusion now reigning: AJ is in Graham's Land (Shetlands); AL, Argentine Island (Shetlands); AQ, Falklands with very QRP 'phone only; AK, Deception Island (Shetlands). A QSL to any VP8 will be delivered okay if sent to Postmaster, Port Stanley, Falkland Islands. Jim's QSL from VQ8AF was handprinted on air-letter stationery Like the comic-strip character who goes around wearing a meteorite shield, W2JBL has a worry. Namely, in the event of disaster and catastrophe which would he instinctively rescue, the XYL or the QSL file? Well, George, we know which of the two is the most difficult to replace, if that is any help W2CTO would like to track down YN1RO for QSL purposes and the DARC is bouncing cards bound for a D04AAJ Students at the University of Oslo have founded the Oslo Students Radio Club with the call LA1AD and a maximum of 150 watts will be used with c.w. and 'phone on all authorized bands. LA9DA is responsible for the station and LA5EB heads the club While attending the 14th Radio and Television Exposition at Brussels, ex-W2MV had the opportunity of meeting many ON4 amateurs. "These boys are swell fellows and a savvy lot. Their rigs are built up out of combinations from the American, English, French, Italian, German or Russian war surplus equipments." What, no Japanese gear? Snooping through the No. Calif. DX Club's DXer: FD3RG has been handling cards for FB8e AX XX and ZZ while ex-SV5UN may now be reached at the home station, W3ODG. By the way, the club now has five members over the 200-confirmed mark The Tri-State Amateur Radio Society's Sparks lists CO2CK as a recent visitor to Evansville (Ind.). Ex-AP2F has left his QSL affairs in the hands of W9FKC. If anyone has been missed, get in touch with Mike At a very enjoyable meeting of the Toledo Radio Club W8YGR ran into a flock of United Nations hamsters. Amateurs from Holland, Philippines, Malaya, Canada, Sweden and Honduras were present.

A gentle reader of last month's lead points out that a would-be DX man's worries really only begin when he licks the "final" worry, TVI. He has no overdue QSLs over which to lose hair, for one thing. His XYL still loves him, too.



Hints and Kinks

For the Experimenter



CUTTING POLYSTYRENE ROD

WHEN cutting polystyrene rod or tubing into short lengths, as for feeder spreaders, the usual method of hacksawing leaves a rough edge. Further, the sawing must proceed at snail's pace or the polystyrene will melt, gumming up the saw blade.

Next time, try an ordinary tubing cutter, the kind with a circular knife that rolls around the tubing. It will cut either rod or tubing in a fraction of the time required for sawing, and will leave a much neater cut end. If an extra-smooth end is desired the raw cut end may be "fire polished" in the manner of glass tubing, by pressing it briefly against the barrel of a hot soldering iron. — *B. C. Barbee, W5FPJ*

TESTER FOR TYPE 24G TUBES

TYPE 24G tubes have been readily available on the surplus market, but in many instances the tubes have exhibited wide variations from one to the next, making it very difficult to get a matched pair for use in push-pull circuits. None of the commercial tube testers makes provision for this tube, so the simple circuit shown in Fig. 1 was worked out to do the job. While the circuit does not permit checking for mutual conductance, it goes a big step beyond the simple continuity and short-circuit tests that can be made with an ohmmeter.

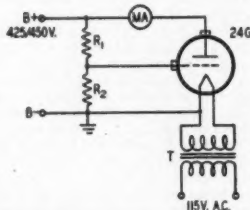


Fig. 1—Simple tube-tester circuit for checking surplus 24Gs.

R₁—Approx. 45,000 ohms, 50 watts.

R₂—Approx. 5000 ohms, 20 watts.

MA—0-200 or 0-500 ma. d.c. milliammeter.

T—6.3-volt 3-amp. filament transformer.

With the components shown, application of 425 volts or so will cause the tube under test to draw about 75 milliamperes. The rated plate dissipation is exceeded when the tube is operated in this fashion, but good tubes will be able to "take it" for brief tests, while less dependable ones will exhibit their weakness. The weak ones either show less-than-normal plate current or go into grid emission which causes plate current to creep upward. Either indication is proof enough that the tube is unsuitable for r.f. service.

Simple though it is, this tester has proved very useful in ham service. It can be employed for matching pairs of tubes for use in push-pull amplifiers in addition to merely indicating the usability of a single tube. To keep the cost down, battery clips were used for all terminals, as well as for plate and grid connectors for the tubes.

— *Neil A. Johnson, W2OLU*

CLEANING LITZ WIRE

IT is important, when using Litz wire, that none of the fine individual strands be broken when making a connection and that each strand be cleaned of all enamel so that it may be soldered. The quickest and easiest method to accomplish this is to heat the end of the wire until it is red hot and then plunge the red-hot end into an alcohol bath. This method is superior to using fine sandpaper as there is practically no risk of breaking the wires and they are all cleaned and ready for the solder. — *R. F. Wright, Jr., W2YZT*

CURING BACKLASH IN BC-348 RECEIVERS

THE following method has been found to be a permanent cure for backlash in the tuning mechanism of a BC-348 receiver. No major dismantling of the receiver is required, and the results permit approaching the desired signal from either side of zero beat without missing the mark.

Slip the chassis out of the case and stand it on end with the bottom of the chassis facing you and with the panel to the left. You will notice that the ganged tuning condenser is held in place with six screws, two at the bottom and four at the top. Loosen the two bottom screws slightly and one or two of the top screws. Using a screwdriver as a "pry," place it between the condenser frame and the panel, and with slight pressure bring the gear on the end of the condenser shaft and the worm on the dial-drive assembly closer together. The change in position will be slight, but will be enough to take up the play. While still holding the "pry," tighten up on the holding screws.

This operation will disturb the original calibration somewhat, but it can be corrected easily by readjustment of the oscillator trimmers. — *Norman E. Blackie, W6WNZ, ex-W1BXB*

MOBILE TIP

TO stop the electrical noise set up by the voltage regulator in an auto ignition system, connect a 10-ohm 1-watt resistor from the terminal marked "field" to ground. This will have very little effect on the operation of the generator, and will usually kill the noise effectively. The resistor should be installed right at the regulator, not at the generator. — *M. J. Silvers, W4HUW*



Military Amateur Radio System



CIVILIAN radio amateurs without any military status now may affiliate with the MARS-Army program! This new authorization, announced as the MARS celebrated its second anniversary of operation, implements a two-year-old provision of the Special Regulation which activated the system.

The Department of the Army announcement hailed the expansion as "making possible a complete radio network throughout the continental United States, which is readily available to military commanders, Red Cross representatives, or other authorities who may be charged with emergency responsibilities in a given area."

A master plan of MARS-Army shows: an Army Headquarters net; six continental Army Area nets; a state net for each state; district nets within each state (as required); and such local nets as may be desirable within each district.

The authorization for civilian membership will make possible the continued use of MARS as a back-up communication system if activities and reserves of the Army are mobilized in a national emergency.

Civilian members are entitled to all the operating privileges the system offers. This includes military call signs, use of military frequencies, SIG manuals and operating instructions, the MARS Bulletin, and a station certificate.

There will be no equipment issued civilian members, however. The law specifically forbids issue of Government-owned equipment for use by private citizens.

One major provision of the authorization is the minimum-age limit. To be eligible for membership as a civilian in the MARS, an amateur must have reached his

21st birthday and he must have a station in operation at the time of application.

In the application form, which may be obtained from any Army Area signal officer, prospective members are asked to certify that they will operate in accordance with rules and regulations prescribed for MARS. In turn they are offered the full cooperation of the Army in providing an instantly-mobilized and highly-flexible communications service for use by military and civil defense authorities on a local or community basis.

Any qualified amateur interested in knowing more about MARS and how he may join is invited to write for complete details to the office listed below for his state.

New York, Vermont, New Hampshire, Maine, Connecticut, Rhode Island and New Jersey: Commanding General, First Army, Governors Island, New York, N. Y. Attn.: Signal Officer.

Pennsylvania, Delaware, Maryland, District of Columbia, Virginia, West Virginia, Kentucky, Ohio: Commanding General, Second Army, Fort George G. Meade, Md. Attn.: Signal Officer.

Tennessee, Mississippi, Alabama, Florida, Georgia, South Carolina, North Carolina: Commanding General, Third Army, Fort McPherson, Ga. Attn.: Signal Officer.

Louisiana, Texas, New Mexico, Oklahoma, Arkansas: Commanding General, Fourth Army, Fort Sam Houston, Texas. Attn.: Signal Officer.

Colorado, Kansas, Wyoming, Nebraska, South Dakota, North Dakota, Minnesota, Wisconsin, Iowa, Missouri, Illinois, Michigan, Indiana: Commanding General, Fifth Army, Chicago 15, Ill. Attn.: Signal Officer.

Montana, Oregon, Washington, Idaho, Utah, Arizona, Nevada, California: Commanding General, Sixth Army, The Presidio of San Francisco, Calif. Attn.: Signal Officer.

Maj. General S. B. Akin, chief signal officer, USA, demonstrates the net control equipment of MARS Headquarters station for Lieut. General Matthew B. Ridgeway, chairman of the Inter-American Defense Board. Brig. General Victor A. Conrad, chief, Army Communications Service Division, looks on.



V.H.F.: Why—How—When?

BY EDWARD P. TILTON, WHDQ

PART I

“WHY should I bother with those bands? Anything you can do there a couple of times a year I can do any day on some lower band, and without half the fuss!”

Nearly every v.h.f. enthusiast has heard this or similar arguments when he tried to sell his pet bands to a fellow with years of successful operation on lower frequencies to his credit. The question is fair enough: what *do* the v.h.f. bands have?

Suppose you have moderate power and an average good ham location in Central Wisconsin,



could you keep a regular 'phone schedule with a station in Milwaukee, say, at 9 p.m.? How about Phoenix to Tucson? Los Angeles to San Diego? Hartford to Brattleboro? Memphis to Jackson?

Probably it *should* be possible to cover any of these paths nicely on 75 most of the time, if it weren't for the competition, but how would you make out in the welter of kilowatts that is 75 in the busy evening hours? The answer is that you just wouldn't, unless you lined up several of the high-powered boys in a round table, to keep the channel at least partially clear.

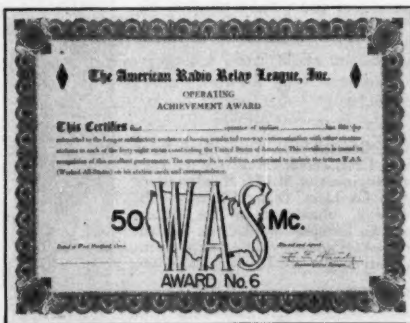
How about 50 or 144 Mc. then? These and many other hops of 75 to 150 miles or so are worked regularly, night after night the year around, on the v.h.f. bands. The signals are no ear-splitters, but they *do* get through, and with lower power than most fellows would think of trying in the face of the heavy competition on lower frequencies. Listen on our so-called "communication frequencies" any evening and you'll hear dozens of stations struggling to work distances that could be covered easily, around the clock, on 6 or 2 meters.

Perhaps the enthusiasm for mobile operation on lower frequencies has started you thinking of uses for mobiles in your local emergency planning, and you wonder what place the v.h.f. bands have in that picture. Observe the operation of 75-meter mobile rigs and see how often any of them have a solid circuit, except by cooperation of several powerful fixed stations. How often can a

10-meter mobile work a local radius of even 10 miles in daytime, when the band is jammed with S9-plus signals from anywhere up to 5000 miles distant? Such a radius, so important in emergency operation, is a lead-pipe cinch on 2 or 6, and no fancy top-loaded happy-family disrupters on that shiny new buggy either! How many commercial services are there left on frequencies where there is skip-distance interference? Those fellows knew where to go. They went *up*, not down, in frequency. Have you noticed how hard it is to spot the cruisers since they changed over to those neat little 18-inch whips?

Like to mess around with beam antennas? (And who doesn't?) Remember the 36-element beam on a recent *QST* cover? 125 feet tall it was, and it weighed a ton. Build it for 420 Mc. and you could carry it in one hand! Even on 50 Mc. almost everyone has at least a 3-element beam, but you hardly notice 'em any more midst the TV arrays. A v.h.f. beam won't hang over your neighbor's garage, but have you tried to put up a 3-element job for 20 on a 50-by-100 lot?

Would you like to be able to claim a "first" in ham radio history? To make the headlines in most ham activities you've got to be a better contest man than W4KFC, or a hotter DX hound than W1FH. You have to organize an expedition to Andorra, or exhibit a QSL from MA1A to cause so much as a lifted eyebrow in DX circles. On 50 Mc. there had been just five of the special hand-lettered WAS certificates issued up to the close of the 1950 season, and only to W5, W9 and W0. WAS *can* be made on 50 Mc. from anywhere in the country, but it hasn't been — yet! Some day an aggressive and competent 50-Mc. man is going to make WAC, too, and there's a beautiful trophy waiting for him at ARRL Headquarters. WAS on 144 Mc.? Who's going to say it's impos-



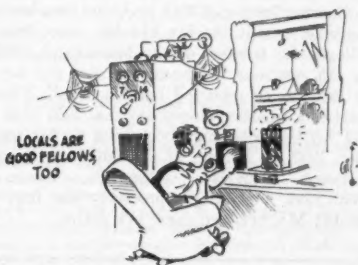
Up to press time there had been just five of these special 50-Mc. WAS awards issued. Will *your* name and call go on Number 6?

sible, with several of the leaders almost halfway there? There are countless frontiers just waiting for occupants of 220 Mc. and higher bands.

Like DX thrills? Do you think they come only on 10, 20 or 40? Then you've never heard the 6-meter gang going after HC20T! Slip that converter down to 144 Mc. when aurora lights the northern skies, and you'll soon find that DX is not measured in miles or megacycles.

Are you a hot contest man? ARRL sponsors three fine week end contests each year, devoted exclusively to 50 Mc. and higher. They're not quite the prolonged endurance contests that some of the low-frequency affairs are, but the competition is just as keen and the numbers taking part are growing all along. The Annual V.H.F. Sweepstakes, held each year in January, has become one of the major affairs on the ARRL operating calendar from the standpoints of participation and enthusiasm.

Is TVI keeping you off the air during the hours when you'd most like to be active? Well, the v.h.f. bands are not TVI-free, by any means, but licking the one-eyed monster is usually easier for the v.h.f. man than for the user of lower frequencies. Plenty of fellows are working nightly on 6 or 2 in locations where opening up on 28 or 14 Mc. would be an invitation to large-scale neighbor trouble.



Have you been around long enough to remember struggling to get 202s to work on 20? Would you like a brand of hamming where just getting the gear to work properly is still a challenge to your ingenuity? Perhaps 420 is for you, or maybe you'd be a hot shot on 1200 or 2400 Mc.

Are you by chance a little tired of the "handle hr Joe rig 807 wid 50 watts" type of QSO, more often than not broken up by QRM before it reaches the friendly stage? Would you like to talk to someone for a change, and have him talk back? Are you the kind who doesn't give a hoot whether the other fellow is a W6 or a W1, so long as he's a good ham with something interesting to chew over? Then why not try 6 or 2, where the hit-and-run contact is the exception rather than the rule, and nerve-wracking QRM is practically non-existent?

Yes, the world above 50 Mc. has something for almost everyone. Its inhabitants are not so different from other hams as some might think. Most of them got there because they were seeking

solutions to some of the questions we've raised here. They are as solid citizens as you'll find anywhere in ham radio. Their interest in their brand of hamming is intense; there are few casual take-it-or-leave-it among them. They ride their hobby for all it's worth; and most important, they have fun! Why not move in with them for a while?

What It Takes

Supposing you've been bitten by the bug — the question now is where do we start? With what? When? How?

It would be nice to be able to say that all you need is a 10-watt rig, a one-tube receiver, a folded dipole in the attic, and a little perseverance, but unfortunately it just isn't so. The widespread belief that these will do is a carry-over from early days, when communication of a sort was carried on with the simplest kind of gear. It is still possible to make contacts on the v.h.f. bands with such equipment, but the results obtainable are not the sort of thing to interest most present-day amateurs for long.

Like any other field of human endeavor, v.h.f. work pays off in proportion to the time and effort we put into it. The upper-bracket v.h.f. men got that way because they worked for it; there is no short-cut easy way to the top. On the other hand, the investment in dollars need not be extensive; perseverance and know-how are much more important.

The transmitter need not be high-powered. A vast majority of v.h.f. men operate in the 100-watt range. Jumping to a kilowatt nets an increase of only 10 db., and this is less important on the v.h.f. bands than on lower frequencies where ability to override others on the same frequency often is a factor in getting through. Power helps, of course, but it is not a major requirement.

A good receiver is vastly more important. Good work is often done on lower bands with relatively poor receiving gear. This is almost never true at 50 Mc. and higher, for here much of our work must be done with weak signals. Time and money spent on improving reception yield big dividends to the v.h.f. man. At the present state of commercial receiver techniques this means that the v.h.f. man may have to build something for himself. The receivers and converters that can be bought for 50 Mc. and higher can be improved on by almost anyone who is willing to do a little tinkering. A good low-noise preamplifier is almost a "must" — and the ambitious v.h.f. enthusiast will probably build a complete converter to use with his communications receiver, before he is satisfied with his receiving ability.

Antennas should be as big and as high as the traffic will bear. Some gain is possible in almost every v.h.f. antenna installation, and the best results are almost invariably attained by the big-antenna men. Putting up big antennas is seldom easy, even when the facilities are available, but by no other means can so great an improvement be made in one's operating effectiveness as by improvements in antenna design. Height above

(Continued on page 88)

The World Above 50 Mc.

CONDUCTED BY E. P. TILTON,* WHDQ

How's activity been on 6 and 2 in your area these evenings? Rather quiet, no doubt, this being the season when some fellows who are primarily interested in DX abandon the v.h.f. bands in favor of lower frequencies. Consideration of this picture of sagging interest occasionally prompts some of the fraternity to ask why we hold the V.H.F. Sweepstakes, major operating activity on the v.h.f. calendar, in January.

That normal falling off in activity during the winter months is the principal reason in back of the selection of the V.H.F. SS date. This contest, with its club incentive, thaws out many operators and rigs that would not otherwise be heard from again until next May or June. Of course, there are some who get on 6 and 2 solely for the contest, but there are many others who, with a little encouragement, would become permanent members of the v.h.f. community.

Experience has demonstrated again and again that new stations show up on the v.h.f. bands during such a contest. It is up to us, the regulars, to see that their initial enthusiasm is not allowed to run out. Welcome these new recruits, and the reappearing "annuals" as well. Tell them about your operating schedules for the winter months and invite them to join in. Then, between the end of the contest and the beginning of the spring DX season, be sure that you don't fall into the habit of "checking the band" with the receiver only.

The Fourth Annual V.H.F. Sweepstakes, Jan. 13th and 14th (see announcement elsewhere in this issue), can be fun for everyone. Ride it for all it's worth; then do your best to see that its beneficial results in the form of increased occupancy are not allowed to go to waste. Let's get 1951 off to a running start!

October-November News

The fall season produced only mild disturbances, and after the big aurora openings of July and August the October and November sessions seemed mild by comparison. Just too late for inclusion in last month's report, October 27th and 28th brought aurora openings on 50 and 144 Mc. During the evening of the 27th aurora signals were reported by W1IZY, W2NLY, W3NKM, W4AO and others, but levels were generally low and activity consisted mainly in calling CQ on the part of the above-listed operators and your conductor.

On the 28th it was a little better. As early as 1:30 P.M. the tip-off (wavery signals out to a few

hundred miles) appeared on 28 Mc., and in a few minutes the hunt began on 144 Mc. W1s IZY and HDQ, W2NLY and W3NKM took turns calling CQ on c.w., with little effect, during most of the afternoon. W3NKM, Pittsburgh, nearly 400 miles to the west, was coming in very well for an aurora signal, but neither W1IZY nor your conductor was able to hear anything farther west, and W3NKM reported little doing before about 6 P.M., when the best period had passed. W2NLY, coming on around 3 P.M., worked W3NKM, VE3AIB and W8FQK. He heard W8WXV, W4AO, W9SUV and several W1s and 2s. W4AO, Falls Church, Va., with high power and a 32-element array, made out the best, working W1s IZY, HDQ, W2PV, W3s NKM, LNA, W8DUL, W9s EGH, EHX, SUV, WOK, and VE3AIB. Ross came on at 4 P.M., and the last signal he heard was W3LNA, at 7:23 P.M.

October 29th and 30th provided excellent tropospheric conditions for 144-Mc. men from the Alleghenies to west of the Mississippi, resulting in DX contacts too numerous and too far back in date to be reported here in detail. This was part of a weather movement that had been dishing up nice openings beginning as far back as Oct. 24th. A feature of the 30th was a contact between W4HHK, Collierville, Tenn., and W3NKM, Pittsburgh, probably the first work on 144 Mc. between these two states.

RECORDS

Two-Way Work

- 50 Mc.: CE1AH — J9AAO
10,500 Miles — October 17, 1947
- 144 Mc.: W8WXV — W5VY
1200 Miles — June 24, 1950
- 220 Mc.: W1CTW — VE1QY
275 Miles — June 29, 1949
- 420 Mc.: W6VIX/6 — W6ZRN/6
262 Miles — July 4, 1949
- 1215 Mc.: G3QC/P — G8DD/P
75 Miles — Oct. 1, 1950
- 2300 Mc.: W6IFE/6 — W6ET/6
150 Miles — October 5, 1947
- 3300 Mc.: W6IFE/6 — W6ET/6
150 Miles — October 5, 1947
- 5250 Mc.: W2LCF/2 — W7FOF/2
31 Miles — December 2, 1945
- 10,000 Mc.: W4HPJ/3 — W6IFE/3
7.65 Miles — July 11, 1947
- 21,000 Mc.: W1NVL/2 — W9SAD/2
800 Feet — May 18, 1946

* V.H.F. Editor, QST.

A disturbance predicted for Nov. 10th to 12th brought little or nothing in the way of unusual v.h.f. propagation. What happened on the monthly recurrence of the late October disturbance is anyone's guess. There may have been an aurora during the evening of Saturday, November 25th — but the portion of the country where aurora DX is most common was too well occupied with the sudden violence of Mother Nature to know or care. If anyone managed to survive that week end without power or antenna failures, we'd be glad to know if he heard anything on 6 or 2!

On the 50-Mc. front, there was little evidence of a sufficiently high m.u.f. to permit F_2 -layer DX during November. Our friends from Mexico and the West Indies southward found the band open regularly during the evening hours, as in past years, but most Ws could only take their word for it. In Australia and New Zealand they were just entering their spring sporadic-E season, and openings were making possible two-way work between the two countries.

Via CE1AH, ZLIABL reports what appears to have been 50-Mc. communication by reflection from the aurora australis during the disturbance of Nov. 10th to 12th. And on the evening of Nov. 10th, CE1AH was receiving 50-Mc. signals from Brazil with her beam pointed south. These are the first instances we've had reported of aurora work on the v.h.f. bands in the southern hemisphere. Can our South American and ZL-VK readers give us more details?

Single Sideband on 50 Mc.?

Bristol, Conn. — Would you like to improve your signal by 9 db.? We go to a lot of trouble to attain much less than that in antenna gain, in increased transmitter power, or improved receiver noise figure, but there is another way that, to our knowledge, has been exploited by no v.h.f. amateur to date. But one is now in the process of trying, and thus we report a genuine "first" — the employment of single-sideband suppressed-carrier technique on 50 Mc. by Howard Wright, W1PNB, of Bristol.

The reduced bandwidth and improved efficiency^{1,2} inherent in s.s.b. operation have caused this technique to be employed by the more progressive voice operators on lower frequencies in rapidly-increasing numbers, but the stability problem has been a stumbling block in the extension of s.s.b. to the bands above 14 Mc. It is none too easy to develop satisfactory stability in a transmitter for 28 Mc., let alone 50, and the commercially-available receivers are almost wholly inadequate, with the exception of some high-priced jobs that can be used successfully on 28 Mc. There is probably no tunable converter in existence that is good enough for really satisfactory s.s.b. work on 50 Mc.

For some time W1PNB has been experimenting with s.s.b. on 10, with somewhat indifferent results, principally because of the poor stability of most receivers used on that band. There was a marked difference, however, when the crystal-controlled converters described in September QST went into service at W1HDQ. Your conductor found that it was possible to tune in the s.s.b. signal of W1PNB and work break-in without receiver adjustments after the initial one. The stability of such a receiving device is the equivalent of the 7-Mc. stability of the receiver with which the converter is used.

Why not 50 Mc., then? Not much weak-signal work is done on 28 Mc. — that band is one where we work with

¹ "What About Single Sideband?," Norgaard, May, 1948, QST, p. 13.

² "A New Approach to Single Sideband," Norgaard, June, 1948, QST, p. 37 (Table I).

2-Meter Standings

Call				Call			
States		Area	Miles	States		Area	Miles
W1HDQ	16	6	850	W6ZEM/6	1	1	415
W1IZY	14	5	570	W6GGM	1	1	300
W1MNF	14	5	570	W6YYG	1	1	300
W1BCN	13	5	500				
W1CTW	12	4	500	W8WIC	20	7	775
W1KLC	12	4	500	W8BFQ	20	7	775
				W8WXY	18	8	1200
W2BAV	21	7	1175	W8UKS	18	7	720
W2NLY	18	6	750	W8EP	17	7	—
W2PAU	15	6	740	W8WRN	16	6	670
W2DFV	13	5	350	W8RWW	14	7	500
W2CET	12	5	405	W8WSE	14	6	620
W2DPB	12	5	500	W8CYE	12	6	—
W2QED	12	5	365	W8CPA	12	—	850
W2FHJ	12	5	—	W8FQK	11	7	—
W2QNZ	12	5	—				
				W9UCH	18	7	650
W3NKM	17	7	660	W9EQC	17	7	520
W3RUE	16	7	760	W9SUV	17	7	—
W3LNA	14	7	720	W9WOK	15	5	690
W3KWL	14	6	480	W9PVJ	15	6	640
W3GKP	13	6	610	W9NFK	12	7	690
W3OWW	13	6	600	W9PFE	11	5	800
W3KBA	13	6	—	W9ULA	11	6	540
W3KUX	12	5	575	W9GTA	11	5	540
W3PGV	12	5	—				
W3LMC	11	4	400	W9NFM	14	7	680
				W9EMS	13	5	1080
W4HHK	15	6	660	W9GJB	12	7	1097
W4JDN	13	6	—	W9HHD	12	5	725
W4IKZ	13	5	720	W9WQZ	11	5	780
W4JFU	13	5	650	W9HXY	8	3	—
W4CLY	12	5	720	W9JHS	7	3	—
W4FJ	12	5	700				
W4MKJ	11	5	650	VE3AIB	12	6	600
W4OXC	10	5	500	VE1QY	11	4	900
W4JFV	9	5	830	VE3BQN	6	4	540
				VE3DER	6	4	450
W5JTI	14	5	670	VE3BOW	6	4	415
W5ML	8	3	725	VE3BPB	6	4	—
W5ERD	8	3	570	VE3EAB	5	4	380
W5VY	7	3	1200				
W5AJG	7	2	450				
W5FTB	6	2	500				
W5FEK	6	2	500				
W5IRP	6	2	410				
W5FSC	5	2	500				
W5JLY	4	2	650				

loud signals, or none. On 6, however, much of our communication is with signals that are close to the noise level. An improvement of 9 db. would be marked, indeed, on 50 Mc., if it can be realized.

The s.s.b. rig at W1PNB is in the initial phases of adjustment and the power output is extremely low, but the crystal-controlled converters at W1HDQ, W1CGY and W1HDF all confirm that the stability and quality are excellent. Some weak-signal comparisons between s.s.b. and a.m. are in the offing, and W1CGY is working on an s.s.b. set-up for 50 Mc. It will be mighty interesting to see what s.s.b. can do on a circuit like the 325-mile hop from W1CGY to W3OJU, where signals never run more than a few decibels above the noise. And it is heartening to see that the inquiring spirit is not dead; that there are still a few fellows who are willing to go to a lot of trouble in search of improved performance on the v.h.f. bands!

Here and There on the V.H.F. Bands

Barranquilla, Colombia — Argentina and Brazil were worked several times on 50 Mc. by HK1DX during November. Ted's log shows nothing heard from Nov. 1st to 7th. On the 8th LU6DO and LU1BV were worked between 9 and 10 p.m. The band was open again on the 10th. PY3BY was worked at 7 p.m., followed by PY3EO at 7:40, LU6BM at 7:55, and PY3EO again at 8:15. On the 11th, LU6DO and PY3EO were worked between 7:15 and 7:40. No signals were heard on the 12th, 13th or 14th.

Miraflores, Peru — There has not been as much 50-Mc. DX for OA4BG as in past seasons, but John reports the band open to Argentina and Brazil on Oct. 12th around 8 P.M., resulting in contacts with LU5CK, LU4DP and

PY3EO, LU4DP and TI2AFC were worked at about the same time the following night, and these two were heard again on the 19th.

Arcola, Ill. — In the period between August and November, W9SUV made more than 1000 contacts with 350 different stations on 144 Mc. The territory covered 17 states and 7 call areas, putting Don close to the top of the 2-meter standings in W9. He also finds time to get in some good licks on 50 Mc. The angle of special interest in this case is that W9SUV is one of those fellows who manages his hamming without benefit of eyesight.

Rochester, N. Y. — The night of Oct. 29th was a new high in DX for the Rochester V.H.F. Group, W2s UAD, TKY, RTB, UXP, ZHB, and YYI all adding new states, and for several of the group their first W9s. Beginning at 9 P.M., W2ZHB worked W9NSF, Muncie, Ind., W9FVJ, Toledo, Ill., W9ASM, Indianapolis, W9GSY, Selma, Ind., W9ZHL, Terre Haute, and W9GWL, Griffin, Ind. Ohio stations coming through during this period were weaker than the W9s, and the Illinois W9s had it over the nearer Indiana fellows. Rochester seemed to be the eastern end of the circuit, and no W8s or W4s were coming through in Rochester. Beginner's luck: W2YYI, making his debut on 144 Mc., worked about everything that some of the gang had been waiting two years for!

New York City — What is perhaps the highest 2-meter antenna is used by W2PRB/2, operating from the midtown Manhattan location of WABD-TV, 650 feet above the ground. This spot has certain disadvantages, however, as Mac, W2PRB, and Ralph, W2KJP, are able to begin operations only after WABD leaves the air. After-midnight ops take notice.

Richmond, Va. — The New York to Washington radio-teletype net has been extended to Richmond, now that W4CYW and W4FJ are both in business with RTTY on 147.96 Mc. They work W4JCV, W3PYW and W3LMC almost nightly.

Oil City, La. — It wasn't so long ago that most hams in the Gulf states were convinced that 2-meter work over more than a mile or two was impossible. One prominent New Orleans operator was heard to remark, on a lower frequency, that "We've tried 2 meters down here, and it just doesn't work out." But when a few fellows started in with good antennas, sensitive receivers and a fair amount of power, things turned out quite differently, and some of the best 2-meter DX has been worked by Louisiana and Texas W5s. Up to the end of October, W5ML had worked 74 different stations in 8 states, at distances out to more than 700 miles, in his first two years on 144 Mc.

Glenside, Penna. — Do stacked arrays pay off on 50 Mc.? Ask W3FZQ, who has had a practical demonstration in the form of greatly increased difficulty in reading the signal of W1HDQ on their nightly sked, since your conductor reconverted the bottom half of his 4-over-4 to a 10-meter rotary. This series of contacts, now running in the 60s, was about 75 per cent successful on voice and solid on c.w., on the worst nights, with the stacked array at W1HDQ. Now, in two weeks of operation with a single 4-element array, only one contact has been even partially successful on voice. Though a signal of sorts can always be heard, there have been a couple of nights when even c.w. was so weak as to be unsatisfactory for reliable communication. Even 4 db. can make a big difference when you are working close to the noise level!

The 420-Mc. Converter at W4BYN

Perhaps some of the 420-Mc. fraternity have shied away from attempting construction of a converter for that band, feeling that such a job would be more electrically or mechanically than they could handle. If so, they should find the gadget described herewith of interest.

It would be hard to imagine anything much simpler circuitwise than the converter used by W4BYN, Memphis, Tennessee. A single 6J6 is used as a combined mixer and oscillator, with a coaxial line in the mixer input. The coaxial assembly was taken from a surplus ARN-5 receiver, but it could be built easily from the details given in Fig. 1. The i.f. is 21 Mc. This can be fed into a communications receiver, or a broad i.f. system for reception of unstable signals can be made from components now being built for television receiver use. There is nothing critical about the intermediate frequency chosen; it may be altered to suit available com-

(Continued on page 90)

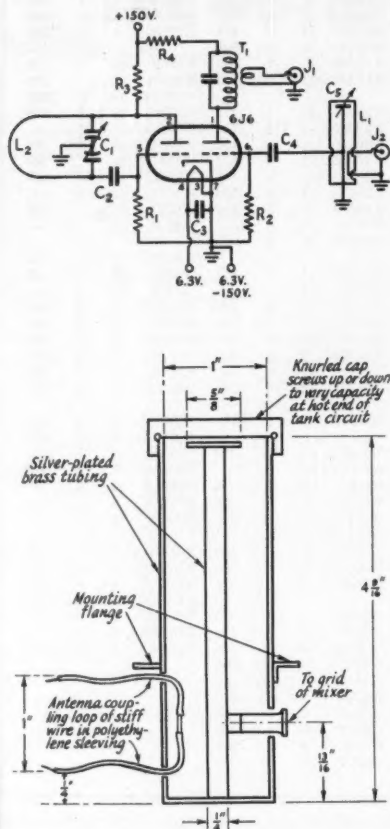


Fig. 1 — Schematic diagram of the simple 420-Mc. converter at W4BYN, with mechanical details of the coaxial mixer assembly.

C1 — 1.7- to 3.3- μ fd. miniature butterfly (Johnson 160-203).

C2, C4 — 22- μ fd. ceramic.

C3 — 500- μ fd. ceramic.

C5 — Built-in tuning device; see sketch.

R1 — 10,000 ohms.

R2 — 0.1 megohm.

R3, R4 — 1000 ohms.

L1 — Coaxial-line assembly; see sketch above.

L2 — U-shaped loop made of $\frac{1}{8}$ -inch-wide copper strip. Folded length $\frac{3}{4}$ inch, width $\frac{1}{4}$ inch. Ends are bent at right angles and drilled to fit over the stator posts on C5, providing a means of inductance adjustment.

J1, J2 — Coaxial fittings.

T1 — 21-Mc. i.f. transformer, with one-turn coupling loop wound over cold end of plate winding.

The principal dimensions of the coaxial line used in the mixer grid circuit appear in the sketch. Conductors may be of brass or copper, preferably silver plated. A disc is soldered to the end of the inner conductor, forming the fixed plate of a capacitor across the end of the line. A knurled cap threaded onto the outer conductor is the variable element.



THE Naval Research Laboratory in Washington is currently seeking research and development workers in electronics and physics fields in numerous specialized classifications. At present, Civil Service status is not a prerequisite. In addition to the actual vacancies, the laboratory is also interested in interviewing individuals who appear to be qualified in the general fields indicated by the vacancies. Pay scales are mostly in the range \$3825-6400 per annum, depending upon the position. There are openings as Electronic Scientist in numerous branches: general electronics, sonar, propagation, electron optics, airborne systems, antenna research, vacuum tube research, radar, countermeasures, etc. There are openings as Physicist in branches such as electromagnetics, ballistics, applied optics, nucleonics, etc. There are also openings as Electrical Engineer in branches such as shipboard and airborne systems. A few examples will serve to show the scope of the vacancies:

Job 3. Electrical Engineer, GS-7 (\$3825-4676), (Shipboard Systems Branch). Experience with feed-back control systems is desirable. Applicant must have experience and/or graduate study in electrical engineering, giving him a substantial background in mathematics and electronics as applied to control processes.

Job 8. Electronic Scientist, GS-9 (\$4000-5350), (Sonar Systems Branch). Duties will be to design instrumentation to exacting specifications for experimental sonar systems. Applicants should possess an appropriate degree and experience in the design of electronic equipment.

Job 10. Electronic Scientist, GS-9, Sound Division (Propagation Branch). A wide, general knowledge of electronics is necessary rather than a specialized knowledge of one particular field. The appointee acts as a consultant in electronics to other physicists and engineers. A fairly recent graduate in electronics with a record of accomplishment of difficult electronic problems is most desired.

Job 19. Physicist, GS-11 (\$5400-8400), Electricity Division (Electromagnetics Branch). The appointee will perform research which will encompass theoretical and experimental studies of ionization, recombination and energy levels of molecules excited by d.c., a.c. or r.f. energy. The Ph.D. degree in physics or equivalent plus experience in research or gaseous conduction or discharges is desirable.

Job 28. Electronic Scientist, GS-9 or GS-11 (Antenna Research). The appointee will perform research in the field of microwave antennas involving the design, development, test measurement, and construction of a final production model of required antennas according to performance specifications as drawn up by a Naval Activity.

Job 29. Electronic Scientist, GS-11 (Vacuum Tube Research). The appointee will perform research in vacuum tubes such as the design of an electron gun and repeller structure, and an electron trajectory device.

Job 34. Electronic Scientist, GS-11 (Systems Utilization). The appointee will be the head of an electronic systems interaction subsection doing experimental work in radio interference measurements and standards and in radio interference instrumentation.

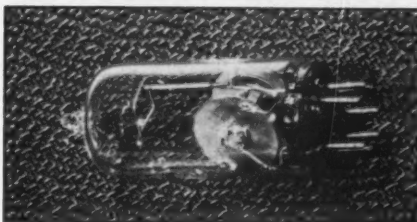
Job 38. Electronic Scientist, GS-9 (Search Radar). Design radar transmitters and closely associated components such as receiver duplexing units. A knowledge of high-power r.f. units is required.

Job 41. Electronic Scientist, GS-9 (Countermeasures). Duties include working on the electronic coordination, synchronization and synthesis of missile control signals for countermeasure actions.

If interested and qualified in these or closely allied fields, write Personnel Division, Code 1817, Naval Research Laboratory, Washington 25, D. C., for a copy of the announcement of openings; if interested in a specific opening mentioned in the above examples, refer to it by job number.

Miniature Magnetron

Anyone familiar with magnetrons immediately visualizes them as the husky copper brutes that are used in microwave radar and other applications. The magnetrons that have appeared in the surplus market have enjoyed little if any use by amateurs, because they are expensive and require pulse and waveguide techniques. However, the General Electric Company recently announced a miniature magnetron (the development number is Z-2061) that appears to offer many possibilities for amateur work. Built in a normal miniature-tube envelope and fitting into the normal 7-pin miniature socket, this tube is capable of operating continuously at 250 milliwatts output anywhere from 30 to 900 Mc. A small magnet slides down



over the envelope of the tube, and suitable circuits are connected to the socket in the usual manner. At the high-frequency end of the range, the tuned circuit might be essentially a hairpin loop of wire. However, because the traveling-wave mode is used, the circuits are physically larger than would be used with negative-grid tubes at the same frequency.

The tube was developed for u.h.f. television receivers and, when produced in large quantities, will sell with its magnet at a price comparable to other miniature receiving types. Mass production of the tubes will be timed to fit into the FCC's release of the new u.h.f. television channels. At present, limited quantities are available for experimental work. — B. G.

X-Strays

The familiar handie-talkie and walkie-talkie equipments of W. W. II have been subjected to radical postwar redesigning, resulting in reduced weight and bulk, increased speech intelligibility, and greater versatility. The handie-talkie of today's Army is a frequency-modulated job, permitting foot soldiers to communicate readily with the more common f.m. "nets" of supporting elements. The new version of the walkie-talkie uses f.m., as did its predecessors, but is only one-half the weight and bulk of the earlier model.

Vacuum tubes with a service life of twenty years have been developed by Bell Telephone Labs for use in repeater amplifiers installed in underseas telephone cables.



Operating News



F. E. HANDY, WIBD, Communications Mgr.
JOHN E. CANN, WIRWS, Asst. Comm. Mgr., C.W.
GEORGE HART, WINIM, Natl. Emerg. Coordinator

J. A. MOSKEY, WIJMY, Deputy Comm. Mgr.
L. G. McCOY, WHCP, Asst. Comm. Mgr., Phone
LILLIAN M. SALTER, Administrative Aide

New Year's Thinking-Out-Loud. The beginning of a new year is an excellent time for review of the accomplishments of the past and evaluation of the opportunities that lie ahead. It has indeed been an excellent year for enjoying the fullness of amateur radio. The issuance of many ARRL proficiency and public service awards, the biggest FD and SET participation in history, the steady growth in the number of emergency coordinators and registered size of our Amateur Radio Emergency Corps, and other 1950 indications are stirring evidence of the passing of another successful year. The increasing public recognition of the educational and public service values in our work reminds us all of the desirability that each amateur continue to devote at least part of his time to particular constructive operating ends.

Let us use this occasion of the New Year to look at our individual progress in the last year and then to assess some of the outstanding opportunities or possibilities in the year to come. We can here pose only a *few* of the many possible questions, of course. Are *you* registered in the AREC? Did you send in your Station Activity Report this month? Are you a member of a net? What ARRL appointments do you hold? Are you originating any traffic? Do you have your Code Proficiency Certificate? Does it stop at 20 or 25 or have you our *top* endorsement? TVI treatment completed for your transmitter? Have you a "set with handles"? Battery or other emergency power? Mobile? Hold RCC-WAS-DXCC? Can you work v.h.f. so you can benefit from the V.H.F. SS coming up this month?

Such a list could be greatly extended. We leave it to you to make up your own list but think you will find a little review a good thing. Amateur radio operating contains quite a wide variety of incentives and objectives. What project or band or proficiency comes next on *your* list? Surveys of amateur interest have indicated that the versatile amateur after reaching one goal often passes on to work for new objectives. Amateurs who start to major in voice operation may become intrigued with c.w. DX potentialities, the traffic man may turn to v.h.f.! The s.s.b. experimenter of today may turn out to be tomorrow's club president or head the club's interference committee or be made responsible for the FD or SET planning. ARRL represents *organized* endeavor and offers appointments to each amateur along the lines of his natural interest.

Not one but many values give our institution its strength and make it respected. The strength

of our fraternity depends on more than just the casual use of our privileges. It depends on the aggregate values created by the activities and proficiencies and operational instruments *you and I and the other fellow* can create and maintain through our organization. Our organization help and ARRL appointments and services of the Communications Department all point in this direction. They are set up to recognize current activity and operating accomplishment, to lend prestige and point to individual efforts, and to establish patterns for organized ability to use our practical circuit means for routine or emergency communications in the public interest in our highest traditions.

A few of our available items are: (1) net directories giving the name, frequency and time of every registered net in the country, a valuable aid for finding the proper outlet for your messages in nationwide service; (2) complete booklet information giving clear instructions for setting up proper message form and checking word count; (3) complete outlines on emergency communications including information on network operations; (4) TVI helps including information suitable for a neighbor "On Your TV Receiver" and for the amateur lists for ready reference to the many helpful articles that have appeared in *QST* covering TVI reduction — also we have "BCI Typical Solutions," sent members on request.

If you are getting into traffic or emergency work or have a TVI problem, we want you as a member to take advantage of these services; it will take only a letter, postcard or a radiogram to Headquarters asking for the information outlined. *Let's do the job right*, whether putting together the preamble of a message, or fixing the rig to solve interference problems. Ask for whichever ARRL helps will further your operation in amateur radio along the line of your natural interest. Any and all amateurs not identified with the Amateur Radio Emergency Corps are especially urged to ask for the AREC registration blank to help you become part of the national organized amateur effort in the direction of public service work.

Let's Do the Job Right! The fun and recognition in doing constructive things make our amateur radio a success! It doesn't take a great deal of listening for one to realize that traffic work, emergency organization and 'phone nets are becoming increasingly popular. C.w. net operation is also at the highest level ever. Some increase in our work can easily be attributed to world condi-

tions. Lots of top-grade morale-helping traffic has to be handled from overseas. Amateurs throughout the country have shown and are continuing to demonstrate great eagerness to take part in civil defense planning and do everything they can to set up emergency communications. Amateur radio has always given freely of its time and equipment when an emergency arose and will continue to do so in the future. The organization of emergency networks at municipal and section levels takes a good deal of work and considerable "know-how" on the part of those participating.

Questions about the correct way to handle messages, how to call the roll, who is the proper emergency coordinator to contact, and many other such matters are constantly reaching us. ARRL can help on these and likewise is equipped to offer free information to any amateur desiring to organize a net where in a city there is no active or regular AREC group or v.h.f. net service. It is a well-known axiom that if you want to do the job right you must have the proper tools and that is exactly what Hq. tries to provide.

Coming Activities . . . Appointment Invitation. The Activities Calendar as usual lists the next CP Qualifying Run opportunities, also the February FMT. And elsewhere in this issue you will find the complete rules for the January V.H.F. Sweepstakes. Note other special announcements as the activities come up. Drop a line to your SCM about the CD appointments you're qualified to hold and send him a word on your amateur station results each month to prove your activity — the criterion for holding all appointments. You get out of any activity in life in proportion to what you put in. ARRL provides operating organization in amateur radio. It is through organized activities that one gets back more than he puts in, through the cooperative ideas and efforts of other amateurs.

— F. E. H.

MEET THE SCM

Scott Davison, W0ED, who has served the Nebraska section as SCM since September, 1949, obtained his first license in the summer of 1933, after several years' interest in amateur radio.

A member of the Pioneer Radio Club of Fremont, Nebraska, and the Miller Radio Club of Miller, South Dakota, he has, at various times, held all the club offices. He is a regular participant in ARRL Sweepstakes and Field Day activities and is a former EC appointee.



In 1938 a Certificate of Merit was issued to him by ARRL for his amateur radio emergency work during the March, 1937, South Dakota sleet and snow storm; he also received a certificate from United Press for the same work in Nebraska.

The station layout at W0ED is as follows: 6J5-6L6-800e with modulator, 6J7-6C5-pr. 6C5-pr. 6L6; and 6L6-6L6-813. Bands used are 3.5, 3.85, 7, 14, and 28 Mc., both 'phone and c.w. Receiver is an NC-57. Regular antennas are an 80-meter 132-ft. end-fed, and a 20-meter doublet.

Another hobby of Scott's is collecting old coins, and for diversion he enjoys basketball, swimming, and all outdoor sports. His occupation is linotype machinist for Walker Newspapers, Inc.

OCTOBER CD QSO PARTIES

Listed below are the highest claimed scores for the October C.W. and 'Phone CD QSO Parties. The figures following each call indicate the claimed score, number of contacts and number of ARRL sections worked. Complete results will appear in the January CD Bulletin.

C.W.

W6BES	184,620-338-60	W8TZO	65,565-372-47
W4KFC	136,010-462-58	W2ZVW	64,750-252-50
W9BRD	127,440-425-59	W7KJG	62,700-155-44
W6CUF	125,493-233-59	W9IA	61,320-212-54
W4IA	121,245-404-59	W9GDI	61,200-240-51
W7KWC	117,836-252-52	W2FGG	60,950-258-46
W1EOB	115,995-460-57	W2ALZ	60,480-219-54
W3VES	113,980-399-56	VEIBK	60,240-251-48
W3FQB	96,839-352-54	W8EXZ	59,800-224-52
W6BIP	95,824-197-53	W9TKX	58,905-224-51
W6LVN	84,609-181-51	W8BGF	58,760-219-52
W4BZE	84,240-307-54	W2EWS	56,100-228-48
W9NH	84,240-306-54	W5OYP	55,355-209-53
W1AQE	81,885-309-53	VE3QE	54,080-215-51
W9FXA	81,510-282-57	W4WWT	53,805-204-51
W3FQZ	81,270-301-54	W4NH	53,580-229-47
W2CWK	80,825-299-53	W4MWH	52,750-204-50
W3LMM	80,300-288-55	W5DEJ	52,675-206-49
W1CRW	79,050-310-51	W7EAU	52,038-118-49
W1OS	77,010-302-51	W4AYN	51,510-202-51
W8DAE	73,160-239-53	W3QLI	51,290-233-44
W4TWI	67,840-249-53	W2LPJ	50,170-171-58

Others with scores over 35,000: W9QLW 49,980, W8ONL 49,585, W3NRE 48,530, W4LAP 48,000, W8ZJM 46,920, W2KEL 44,880, W5LGG 43,920, W8DU 42,700, W8IC 42,000, W2NIY 41,280, W0CBE 41,175, W4CXY 40,890, W1AQT 39,560, W7MLL 38,070, W4FV 35,175, W0HDD 35,045, W1IJT 35,040.

'PHONE

W4DCQ	23,200-116-40	W0CHV	4335-25-17
W4NYN	16,200- 90-36	W1AQE	4095-39-21
W4FV	14,280- 79-34	W4NAD	3580-35-22
W4KFC	13,940- 75-34	W1YJH	3740-40-17
W8NOH	13,200- 75-33	W5GHP	3400-34-20
W6ZIM	10,230- 66-33	W9TAL	3060-32-17
W4CVO	9135- 66-29	W9RZS	3000-30-20
W2ZVW	8370- 55-27	W1EOB	2975-28-17
W8AJW	7000- 51-25	W1NJM	2720-27-16
W4JG	6500- 49-25	W8DRW	2610-24-18
W4AKN	6375- 46-25	W4LPP	2550-27-15
W5WZ	4800- 41-20	W2DME	2320-29-16
W0IFA	4718- 36-23	VE3BL	2000-19-16
W8AQ	4410- 35-21		

A.R.R.L. ACTIVITIES CALENDAR

- Jan. 5th: CP Qualifying Run — W6OWP
- Jan. 13th-14th: V.H.F. Sweepstakes
- Jan. 19th: CP Qualifying Run — W1AW, W9TQD
- Jan. 20th-21st: CD QSO Party (c.w.)
- Jan. 27th-28th: CD QSO Party ('phone)
- Feb. 3rd: CP Qualifying Run — W6OWP
- Feb. 7th: Frequency Measuring Test
- Feb. 9th-11th: DX Competition (c.w.)
- Feb. 14th: CP Qualifying Run — W1AW, W9TQD
- Feb. 16th-18th: DX Competition ('phone)
- Mar. 2nd: CP Qualifying Run — W6OWP
- Mar. 9th-11th: DX Competition (c.w.)
- Mar. 13th: CP Qualifying Run — W1AW, W9TQD
- Mar. 16th-18th: DX Competition ('phone)
- April 1st: CP Qualifying Run — W6OWP
- April 14th-15th: CD QSO Party (c.w.)
- April 19th: CP Qualifying Run — W1AW, W9TQD
- April 21st-22nd: CD QSO Party ('phone)
- May 5th: CP Qualifying Run — W6OWP
- May 16th: CP Qualifying Run — W1AW, W9TQD



Well over 200 reports of activity in the SET have been received so far, with more still trickling in. This compares favorably with 127 last year. Data hastily extracted from the reports show that 2276 amateurs participated in the test using 1019 mobiles or portables and 209 fixed stations operating on emergency power throughout the test. The total number of messages sent to ARRL, as indicated in reports received, is 1459 (we actually received 1620). Some groups did not include figures with their reports, and undoubtedly there are still some groups who have not reported.

Considering all such factors, we can estimate that about 4000 amateurs participated in the 1950 SET, and that perhaps 300 ECs were on the job. Every advance indication points to the fact that the 1950 SET was the biggest and best yet, and that a tremendous job has been done since this time last year. We may well pride ourselves on the progress we have made.

But before we get too complacent about the whole business, let's take a look at some additional comparative figures. For example, 4000 amateurs may have participated, but there are around 85,000 amateurs licensed in the United States alone. Even if we assume that less than half of these are active on the air, which is quite an assumption, the percentage is still not especially impressive. Almost 1100 ECs have received appointments from their SCMs; if 300 were active, where were the other 800??? Our performance in 1950 was good. We're not kicking. We just want to point out that we are a long way from perfect. Our progress has been unprecedented, but it is just beginning. We cannot sit back and relax, now that a successful annual test has been completed. We have work to do, so let's get on with it. Read Bud's editorial in December QST and you'll get an idea of what we are up against.

It is time for you to get active in the Amateur Radio Emergency Corps, OM! You don't have to spend all your time at it; you don't have to have emergency power; and you don't have to belong to any organization, national or local. All you have to have is a desire to help serve the public and the nation in the name of amateur radio. If you have that, get an AREC registration form (Form 7) from your EC, or write us if you do not know who he is. We'll be glad to send you a registration form and tell you whom to submit it to. Most active amateurs have every intention of signing up, but keep putting it off. Okay, let's do it, OM — now!

The close coordination between AREC members in the state of Washington with the Washington State Patrol paid off last October when local amateurs were instrumental in supplying communications in the search for two lost state patrolmen in the mountains near Everett. W7IOQ was first to offer his services when he read about the lost officers, which services were immediately accepted and put to work.

On Thursday morning, October 19th, W7IOQ and W7KLB took their mobile gear, gas-engine generators and four BC-611 walkie-talkies to Verlot, where a net control station was established. The BC-611s were taken with the searchers, and constant communication was maintained with them for a day and a half. Greatest distance covered was about 25 miles. Six additional walkie-talkies were later put into use at the request of the chief of the Washington State Patrol. Mobile units in cars were almost entirely useless, since the searching had to be done on foot, for the most part, over very rugged terrain. W7s KLB, LBP and JCT participated on the scene while W7s KWX, MYL, CSK, FFP, MHM, JFB, RT, LJB and IOQ loaned equipment or were on the air from Everett. W7IOQ states that the major lesson learned was the importance of having all equipment operate on the same frequency. Ten meters in the evening and 75 meters in the daytime seemed to be the best choice of channels.

NATIONAL CALLING AND EMERGENCY FREQUENCIES

C. W.	'PHONE
7100 kc. (day)	3875 kc.
3550 kc. (night)	14,225 kc.
14,050 kc.	29,640 kc.
28,100 kc.	

During periods of communications emergency these channels will be monitored by stations of the National Emergency Net for personal-inquiry traffic. At other times, these frequencies can be used as general calling frequencies to expedite general traffic movement between amateur stations. Emergency traffic has precedence. After contact has been made the frequency should be vacated immediately to accommodate other callers.

The following are the National Calling and Emergency Frequencies for Canada: c.w. — 3535, 7050, 14,060 kc.; 'phone — 3815, 14,160 kc.

At about 9 o'clock on the evening of October 26th, Grants Pass, Ore., and vicinity were lashed by one of the heaviest wind storms in local history. Uprooted trees crashed across power and telephone lines, blocked streets and roads and fell on homes, automobiles and trailer houses. In Grants Pass and adjacent territory power was off for from three to seven hours.

Before the blow had subsided EC W7KEN and W7FTA rushed to the police station and offered assistance. A few minutes later W7JOL arrived, who picked up W7MEV, followed closely by W7MKA and W7NFZ. Within 15 minutes a battery-powered 10-meter transmitter was set up in the police station, working with two 10-meter mobiles. In each mobile the Chief of Police placed an officer.

Emergency operations continued for about four hours, at which time power service was partially restored. During the emergency W7MEV and W7JOL helped install an a.c. generator at the hospital where doctors and nurses were working under extreme difficulties, caring for victims injured by falling trees. W7OPH, a member of the local police force, acted as liaison between the hams, city officials and public utilities.

Some 48 hours later a heavy and continuous rain caused flood conditions. Rising water inundated county roads, city streets and washed out numerous bridges. By 2:00 P.M. October 28th, all highways leading into Grants Pass were

On Sunday morning, Sept. 10th, the mobile units of the Milwaukee Radio Amateurs' Club lined up in front of the Milwaukee County Courthouse; purpose: publicity photos. This is one of several photos which appeared the following day in the Milwaukee Sentinel and the Milwaukee Journal, along with a write-up emphasizing the club's civil defense communications potentialities. (Photo courtesy Milwaukee Sentinel)

QST for



closed. Local amateurs again stood by until at 11:00 P.M. when the EC put them into action. Although power did not fail, an emergency transmitter was again set up in the police station to provide a link with the more-powerful home station which was acting as control station for the mobiles which were operating out of town aiding sheriff deputies in rescue operations as well as reporting road conditions and rising water. This operation continued throughout the night and until early morning when the downpour ceased and the high water crest passed.

Operating the emergency station at police headquarters were W7NFZ and W7ITZ. W7MEV acted as NCS and mobiles were manned by W7KEN and W7FTA. The Chief of Police and the officers of the City of Grants Pass expressed their gratitude to the Southern Oregon Radio Club and each ham who took part in the emergency operations.

— W7ITZ, Secy., Southern Oregon Radio Club

The Milwaukee Radio Amateurs' Club has reported good success in obtaining favorable publicity in the local papers and wants to pass the secrets of its success along to other clubs. During the summer a "mobile wing" was organized within the club, which participated in the annual Chevrolet Soap-Box Derby, sponsored by the Milwaukee *Sentinel*. Paper officials and the mayor were so impressed that the club has been asked to participate in next year's derby. In September, the mobilers lined up in front of the county courthouse for a "mobile show" which was covered by both local papers. The cut shown is just one of many pictures which were published in both the *Sentinel* and the *Journal*. In October, the club's mobiles participated in Milwaukee's Community Chest parade which was 8½ miles long, furnishing complete communication for the parade's officials who rode in the mobiles. Each mobile unit was furnished with a large sign identifying it as "Milwaukee Radio Amateurs' Club—Mobile Radio Unit." The mayor personally congratulated the group on its performance and next morning the *Sentinel* said "If the Milwaukee Radio Amateurs' Club handles emergency communications as efficiently as it did the 'Good Neighbor' parade Sunday, Milwaukee will have nothing to fear from that quarter."

Their formula is simple: (1) establish a "mobile wing" in the club; (2) participate in all possible civic events, as well as conduct drills from time to time, to keep the interest up; (3) have a line-up of your mobiles in front of some civic building and invite the press to take pictures; (4) get active in the civil defense program of your community, which is an item of major interest these days.

On Nov. 1st, a fire which started somewhere in Griffith, Ind., and traveled to just north of New Elliott, Ind., caused EC K9AAR of Hammond to alert his AREC organization to assist. By 7:00 P.M. the flames were as high as 25 feet and some homes were in its path. At 7:10 K9AAR was alerted, was operating mobile by 7:20, and all other mobiles were on by 7:30, having been alerted either by telephone or radio. W9OFD acted as net control of the mobiles until W9MVZ arrived. Other mobiles participating were W9KRJ, W9GZH, W9GUX and K9AAR. W9GNNR assisted from a fixed location. Since there were no telephones in the affected area and the town was without fire protection, the mobile units were instrumental in supplying communication between the various fire-fighting units until the blaze was brought under control.

SCM W2OEU suggests that emergency coordinators who get bulletins from Headquarters pass these around among members of their AREC groups so that all personnel are adequately informed. A good idea! A well-informed group is one of the best assurances of an efficient organization.

W7GTN reports the first instance we have heard about in which s.s.b. was used for emergency communication. During a communications outage between the little town of Stibnite, Idaho, and Boise in late October due to heavy rainfall followed by high winds and wet snow, W7GTN in Boise maintained communication with W7CUG in Stibnite for two days using s.s.b. Communication was required around-the-clock during most of this period. Prior experience with a.m. transmission had indicated great difficulty in maintaining constant communication but little trouble was experienced on s.s.b. using half the power. Both W7GTN and W7CUG are convinced that without

this method of transmission the 100% contact they were able to maintain would not have been possible.

Notice the new heading to this column? AREC stands for *Amateur Radio Emergency Corps* and becomes the official name of our emergency organization from now on. Forms and supplies will bear the new name as and after present stocks are used up, but not before. Meanwhile, nothing has been changed about the old AEC except its name.

BRIEF

A rather interesting four-way QSO took place on 75 'phone on November 13th. W2UNJ was using s.s.b. W1PXX operated n.f.m., W2ZBK had controlled carrier and W2NCY was on with a.m. The QSO lasted about three hours and the fellows were kept pretty busy tuning and adjusting receivers for each type of emission.

DX CENTURY CLUB AWARDS

HONOR ROLL

W1FH.....236	G2PL.....226	W0YXO.....222
W8HGW.....232	W2BXA.....224	W3GHD.....222
W6VFR.....229	W6EBQ.....224	W3CPV.....222
W3BES.....227	W6ENV.....223	

RADIOTELEPHONE

W1FH.....195	PY2CK.....182	W2BXA.....173
XE1AC.....188	W6DI.....181	W9RBI.....170
VQ4ERR.....182	W8HGW.....181	W1JCX.....170
	LU6AJ.....179	

From October 15 to November 15, 1950, DXCC certificates and endorsements based on postwar contacts with 100-or-more countries have been issued to the amateurs listed below.

NEW MEMBERS

W1JNV.....120	G8PW.....104	DL7AF.....102
ON4NC.....116	W4AWS.....104	OE3CC.....101
W3ALB.....116	W3AFU.....103	W6GPB.....101
OZ3Y.....111	I1ARA.....103	OH4NF.....101
W6CU.....111	DL1AT.....102	W9EXY.....100
SM7QY.....111	G3ABG.....102	W3AFM.....100
OK3SP.....106	K6G6D.....102	KL7PJ.....103
SM5DZ.....106	W8PM.....102	W2GSN.....100
W1RWE.....105	G3CYG.....102	OK1MB.....100
	W6MEL.....102	

RADIOTELEPHONE

W4DCQ.....109	W3KT.....103	W0JRY.....101
DL1FK.....106	W2QCP.....102	W9GZK.....100
EH4Q.....105	V89AH.....102	W8DMJ.....100
W9LXQ.....103	I1BIC.....102	W4GTO.....100

ENDORSEMENTS

W1JYH.....203	W1AXA.....166	W4HVQ.....142
CE3AG.....201	W1GKK.....163	W3IXN.....141
W3OCU.....201	W9TQL.....162	W9ABA.....140
W9PNQ.....201	G2MI.....161	G3AKU.....136
W8BRA.....199	W1DQH.....160	W8AJW.....135
W5KC.....192	OK1HI.....160	OH2PK.....130
W6BPD.....192	OK1VW.....160	VQ8AD.....130
W1HX.....190	W2QCP.....154	G5FA.....130
W6RBQ.....190	W1MUN.....150	W1TX.....130
W2YW.....178	W4RBQ.....150	W3CGS.....120
G3DO.....175	W2BJ.....150	ZL3LR.....120
W1AB.....171	W1FJN.....150	KL7IT.....120
W2PUD.....170	W6LDD.....150	W4EV.....113
W8UDR.....170	W1HA.....150	W9HUZ.....110
IK1N.....170	IO1Q.....150	W4QT.....110
CE3DZ.....170	G3DCU.....145	HB9FL.....110
W8DR.....170	G6RC.....142	W0DGA.....110

RADIOTELEPHONE

SM4KP.....156	I1SM.....140	W9UUN.....121
HC2JR.....152	W4ESP.....140	W8AJW.....121
W1FJN.....150	W6AM.....137	W2NHZ.....120
G3DO.....150	W6CHV.....131	VE1CR.....113
W3BES.....141	W2ZKG.....124	W2PRF.....111
	W9EYR.....122	

TRAFFIC TOPICS

Organization and system are something that we amateurs are becoming increasingly aware of. Every traffic net follows some standard of operation, some set procedure which everybody in the net is urged to follow — or else they don't get much traffic handled. Both in 'phone and c.w. nets, a procedure is involved as to how one reports in, indicates traffic, sends traffic and reports out of the net. This is generally accepted as right and necessary, and the net with the snappier procedure is considered the "hotter" net.

But when it comes to organization of nets into systems, the picture changes a bit. What is desirable from the standpoint of one net may be the bunk for another. Quite often a system of nets will fall apart because of inability or unwillingness of one or more groups to conform to the over-all pattern — and so we have individual nets springing up everywhere, each with its own specific purpose and coverage and its own closely-knit gang of fellows. Liaison connections are sometimes available with other nets, if it is convenient, but that's usually as far as it goes. Standardization, organization, system, all are easier among a local group who have similar problems than among widely-scattered groups many of whom have quite different problems. Yet, in the interest of unity of purpose, it is necessary that somehow these problems be resolved, that local deviations from the pattern necessary for reasons of local circumstances eventually be worked out so that we traffickers, as well as the rest of amateur radio, can present a united front, a single strong facility, rather than a scattered mass of unconnected and isolated facilities. The difficult task of accomplishing this is a challenge to our ability to work together — a challenge we can meet if we will.

Occasionally a station in a net originates a message addressed to all net members and transmits it simultaneously to a number of stations at the same time (called "QNC" on c.w. nets). The question of how to count such messages in the monthly traffic total has arisen. This question can be answered by reference to the general premise that a message counts in the total each time it is handled by radio; and "handling" means transmitted by the sending station and acknowledged by the receiving station. Thus, for the transmitting station, such a message counts as one transmitted or one relayed, depending on whether or not the message was originated by the transmitting station. For each station on the net who acknowledges receipt, it counts as one received. It does not count at all for either transmitting or receiving station if no acknowledgment of receipt is given. Note also that the transmitting station gets only one point for each time the message is transmitted in full, regardless of how many stations copy and eventually acknowledge it.

The total net registration to date (Nov. 16) is 189. Of these, 94 are principally traffic nets, 69 emergency and 26 are unknown — 98 nets use c.w., 96 use 'phone (a few use

both). The net listing listed elsewhere on this page supplements and corrects the listing which appeared on pages 58 and 59 of November QST. By the time this appears, a complete cross-indexed mimeographed net directory should be available.

SUPPLEMENT TO NET DIRECTORY

The following list of nets will supplement and correct the listing on pages 58 and 59 of November QST. An asterisk (*) indicates correction from previous listing. If your net is not listed below, it was not registered with us up to Nov. 16, 1950. Send us the information requested on page 60, Sept. 1950 QST, or ask us for a net registration card.

Name of Net	Freq.	Time	Days
Alabama Emergency Net (AENB).....	3715	1900 CST	Daily
Alberta Phone Net.....	3765	1930 MST	Mon., Wed., Fri.
Arizona Emergency Net (AEN).....	1990	1900 MST	Tue.-Thu.
	3865		
	7210		
Arizona Phone Net.....	3865	0600 MST	Daily
		1230 MST	
		1700 MST	
Arkansas Slow Speed Net	3700	1830 CST	Mon.-Fri.
Barnyard Net.....	3924	0800 EST	Mon.-Sat.
Beaver Net (QBN) (Ont.)	3535	1900 EST	Mon.-Fri.
		2200 EST	
British Columbia Net (BCN).....	3655	2100 PST	Mon.-Fri.
Canal Zone Emerg. Net...	28,900	2100 EST	Mon.
Canal Zone Traffic Watch	14,280	2200 EST	Mon., Wed., Fri.
Canal Zone Traffic Watch	28,900	1215 EST	Mon.-Fri.
		1700 EST	
Central Area Net (CAN)...	3670	2030 CST	Mon.-Fri.
Connecticut Net (CN)....	3640	1900 EST	Mon.-Fri.
		2200 EST	
Connecticut Phone Net (CPN).....	3880	1845 EST	Mon.-Fri.
		1000 EST	Sun.
Connecticut Training Net (CTN).....	3640	1900 EST	Sat., Sun.
Crossroads Emerg. Net Atlantic Side (C.Z.).....	28,600	2111 EST	Mon.
Deep Sea Dragnet.....	3900	1145 EST	Mon.-Fri.
Denver Area Civilian Emerg. Net (DACEN).		2000 MST	Thu.
(Zone 1).....	29,100		
(Zone 2).....	29,200		
(Zone 3).....	29,000		
(Zone 4).....	29,280		
(Zone 5).....	29,400		
(Zone 6).....	28,720		
(Zone 7).....	29,500		
Eastern Area Net (EAN)...	3705	2030 EST	Mon.-Fri.
Eastern Mass. Net (EMN)	3745	1900 EST	Mon.-Fri.
		2200 EST	

An imposing group of traffickers from the Tall Corn Net (Iowa) and the Tenth Regional Net of the National Traffic System gathered at the home of W0AUL on the Friday of the Midwest ARRL Division Convention. So much BPL is represented here that we want to introduce each of them. *Sitting, l. to r.:* W0AUL, RUP, QAO, NYX, QVA, TIU, HMM. *Standing, l. to r.:* W0WGM, W0WAY, W0HKN, W0FID, W0ATA, W0VRD, W0PZO, W0BDR, W0HQA, W0PP, W0BDZ, W0SCA, W0KJP, W0TOD, W1BUD, W0NIY, W0CDB, W0OSC, W0NWF, W0ITQ, W0GJT, W0YTA, W0YNP, W0ZFO, W0JDJ, W0SCW.



Eastern Man. Slow Speed Net (EMNS).....	3745	1815 EST	Mon.-Fri.
FAIRM Net.....	3935	1930 MST	Mon.-Fri.
Florida Emergency Phone Net (FEPN).....	3910	1315 EST	Tue.
Gem Net (Idaho).....	3743	2000 PST	Mon., Wed., Fri.
Golden State Emergency Net.....	3965	1900 PST	Mon., Wed.
High Plains Net.....	1995	1830 CST	Mon., Wed., Fri.
Illinois Emerg. Net (IEN)*	3940	0900 CST	Sun.
		1900 CST	Tue., Thu.
Indiana CW Net (QIN)...	3656	1830 CST	Mon.-Sat.
Kansas QKS Net.....	3610	1845 CST	Mon., Wed., Fri.
Kansas QKS SS Net.....	3610	1845 CST	Tue., Thu.
Kansas 75 Phone Net.....	3920	1000 CST	Sun.
		1230 CST	Tue., Fri.
		1845 CST	Thu.
Kentucky Net (KYN)....	3600	1900 CST	Mon.-Sat.
		1400 CST	Sun.
		0730 EST	Sun.
Knights of the Kilocycles..	3910	0730 EST	Sun.
Lancaster County AEC Net (Pa.).....	146,000	2000 EST	Mon.
Los Angeles Section Net (LAX).....	3615	1900 PST	Daily
		2200 PST	
Michigan Emerg. Net (MEN).....	3930	0900 EST	Sun.
Michigan QMN Net.....	3663	1700 EST	Mon.-Sat.
		1800 EST	
		1900 EST	
Minnesota Phone Net....	3960	1800 CST	Daily
Minnesota Section Net (MSN).....	3795	1900 CST	Mon.-Sat.
Minion Trail Net.....	3904	1900 PST	Daily
	3854		
Missouri Emerg. Net*....	3905	1930 CST	Mon., Wed., Fri.
Montana Phone Net*....	3910	1900 MST	Mon., Wed., Fri.
Nebraska CW Net (NEB)...	3745	1900 CST	Mon.-Fri.
Nebr. 100 Emerg. Net*....	1995	2215 CST	Mon.-Fri.
Nevada State Net (NSN)...	3660	2000 PST	Mon.-Fri.
New England Emerg. Net	3975	1800 EST	Tue.
New Hampshire 80-Meter Traffic Net (NHEN)....	3685	1900 EST	Mon.-Fri.
New Mexico CW Net.....	3705	1900 MST	Mon.-Fri.
Niagara Mohawk Net (NMP).....	3583	2300 EST	2nd & 4th Fri.
	7160	0930 EST	1st & 3rd Sat.
North Texas Emerg. Net (NTEN).....	3930	0800 CST	Sun.
Northeast Texas Emerg. Net (NETEN).....	3940	0900 CST	Sun.
Northern Ohio Emerg. Net	1820	2100 EST	Tue.
Ontario Phone Club.....	3815	0930 EST	Sun.
Ontario Phone Net.....	3815	1900 EST	Mon., Wed., Fri.
Oregon Emergency Net (OEN).....	29,200	1900 PST	Daily
		2100 PST	
Oregon Emergency Net... 146,250	1930 PST	Daily	
Pacific Area Net (PAN)...	3670	2030 PST	Daily
Palmetto Net (FN).....	3673	1900 EST	Mon.-Fri.
		2200 EST	
Pine Tree Net (PTN)*....	3596	1900 EST	Mon.-Fri.
Quinebaug Valley Emerg. Net (QVEN).....	3680	2030 EST	Mon.
River Forecast Net (RFN)*	3656	0700 CST	1st Sun. ea. Mo.
	3905		
	7170		
Saskatchewan CW Net....	3585	2000 MST	Mon.-Fri.
Saskatchewan Phone Net	3790	1930 MST	Daily
Seventh Regional Net (RN7).....	3675	1945 PST	Mon.-Sat.
		2130 PST	
South Carolina Amateur Net.....	3930	1930 EST	Mon.-Fri.
Southeast British Columbia AEC Net.....	3755	1800 PST	Mon., Wed., Fri.
South Texas Emergency Net (STEN).....	3860	1830 CST	Mon.
(Zone 1).....	3860	1830 CST	Fri.
(Zone 2).....	3860	1830 CST	Thu.
(Zone 3).....	3860	1830 CST	Wed.
(Zone 4).....	3860	0830 CST	Mon.
(Zone 5).....	3860	1930 CST	Tue.
(CW).....	3790	2030 CST	Mon.
Southern Calif. Net (SCN)	3650	1915 PST	Mon.-Fri.
		2200 PST	

Tenn. Slow Speed Net*....	3737	1815 CST	Mon.-Fri.
Transcontinental Phone Net (TCPN).....	3970	1830 EST	Daily
Trunk Line I (TLI).....	3690	2100 MST	Mon.-Fri.
Trunk Line J (TLJ)*....	3565	1945 CST	Mon.-Sat.
Trunk Line S (TLS).....	3545	2000 EST	Mon.-Fri.
29.2 Net.....	29,200	2200 PST	Daily
West Va. Traffic Net (WVN).....	3770	1800 EST	Mon.-Fri.
West Va. Phone Net*....	3890	1900 EST	Mon.-Fri.
Western Man. 10-meter Emergency Phone Net... 29,400	2100 EST	Thu.	
Wis. CW Traffic Net (WIN)*....	3625	1900 CST	Daily

BRASS POUNDERS LEAGUE

Winners of BPL Certificates for October traffic:

Call	Orig.	Recd.	Rel.	Del.	Total
W6CE	167	1883	1865	21	3966
W3CUL	246	1646	1429	166	3487
W4PL	10	1101	1081	26	2218
W9AY	19	638	627	18	1302
W9ZJO	11	499	436	63	1009
W7CZY	10	468	341	127	946
W6BAM	11	459	426	28	924
W6JZ	28	418	391	62	899
W6LDR	83	380	253	127	843
W6NW*	20	407	356	49	832
W7IOQ	12	364	344	10	730
W8CA	8	357	334	16	715
W8AUJ	7	341	324	14	686
W6DTW	12	10	660	0	682
W1EOB	23	301	286	4	614
W9ESJ	31	342	156	30	559
W1NGV	63	247	240	7	557
W3NRE	16	270	250	16	552
W2VNJ	23	269	166	69	527
W6GYH	31	252	129	115	527
W6SWP	18	254	154	92	522
W8YCP	88	236	196	28	518
W3GEG	8	252	248	6	512

The following made the BPL for 100 or more origination-plus-deliveries:

W6EAJ/6	358	W6QIE	176	W1QUA	182
W4OWS/KG6	293	W6DDE	135	W6MTQ	182
W7LEC*	210	W8DEX	125	JA2HQ	190
W7HMQ*	177	W7EOB*	114	W2RTZ/8	100

A message total of 500 or more or 100 or more origination-plus-deliveries will put you in line for a place in the BPL. The Brass Pounders League is open to all operators who qualify for this monthly listing.

* September Traffic

FREQUENCY-MEASURING TEST, FEBRUARY 7TH

All amateurs are invited to try their hand at frequency measuring. WIAW will transmit signals for the purpose of frequency measurement starting at 9:30 p.m. EST (8:30 p.m. PST), Wednesday, February 7th. The signals will consist of dashes interspersed with station identification. These will follow a general message sent to help listeners to locate the signals before the measurement transmission starts. The approximate frequencies used will be 3601, 7145 and 14,006 kc. About 4½ minutes will be allowed for measuring each frequency, with long dashes for measurement starting about 9:36 p.m. It is suggested that frequencies be measured in the order listed. Transmissions will be found within 5 or 10 kc. of the suggested frequencies.

At 12:30 a.m. EST, February 8th (9:30 p.m. PST, February 7th), WIAW will transmit a second series of signals for the Frequency-Measuring Test. Approximate frequencies used will be 3511, 7284 and 14,130 kc.

Individual reports on results will be sent to all amateurs who take part and submit results. Copies of this report are sent SCMs also, so eligibility for OO appointments is known. When the average accuracy reported shows error of less

than 71.43 parts per million, or falls between limits of 71.43 and 357.15 parts per million, the participants will become eligible for appointment by SCMs as Class I or Class II official observers, respectively.

This ARRL Frequency-Measuring Test will be used to aid qualification of ARRL members as Class I and Class II observers. Present observers not demonstrating the requisite average accuracy will be reclassified appropriately until they demonstrate the above-stated minimum required accuracy for these classes of appointment. Class I and Class II OOs must participate in at least two Frequency-Measuring Tests each year to hold such appointments. SCMs (see address, page 6) are open for initial applications for Class III and IV observer posts, good receiving equipment for 'phone and c.w. bands being the main requirement. All observers must make use of the cooperative notice (mail) forms provided by ARRL, reporting activity monthly through SCMs, to warrant continued holding of official observer appointment.

QST To Report Results

Any amateur may submit frequency measurements on one or all frequencies listed above. No entry consisting of a single measurement will be considered eligible for the QST listing of the top results in this FMT; at least two readings and preferably more should be submitted to warrant QST mention. Order of listing will be based on the over-all average accuracy, as compared with readings submitted by an independent professional frequency-measuring organization.

CODE-PROFICIENCY AWARDS

Have you received an ARRL Code Proficiency Certificate yet? Twice each month special transmissions are made to enable you to qualify for the award. The next qualifying run from W1AW/W0TQD will be made on January 19th at 2130 EST. Identical texts will be sent simultaneously by automatic transmitters. Frequencies of transmission from W1AW will be 1887, 3555, 7215, 14,100, 28,060, 52,000 and 146,000 kc. W0TQD will transmit on 3534 kc. The next qualifying run from W6OWP only will be transmitted on January 5th at 2100 PST on 3590 and 7248 kc.

Any person may apply; neither ARRL membership nor an amateur license is required. Send copies of all qualifying runs to ARRL for grading, stating the call of the station you copied. If you qualify at one of the five speeds transmitted, 15 through 35 w.p.m., you will receive a certificate. If your initial qualification is for a speed below 35 w.p.m., you may try later for endorsement stickers.

Code-practice transmissions are made from W1AW each evening, Monday through Friday, at 2130 EST. References to texts used on several of the transmissions are given below. These make it possible to check your copy. To get sending practice hook up your own key and buzzer and attempt to send in step with W1AW.

Date Subject of Practice Text from November QST
Jan. 2nd: A Crystal-Filter S.S.B. Exciter, p. 11
Jan. 4th: A Bandwidthing Mobile Converter, p. 18
Jan. 5th: Qualifying Run, 2100 PST, from W6OWP only
Jan. 10th: Premodulation Clipping and Filtering, p. 22
Jan. 12th: Technical Topics, p. 26
Jan. 15th: General Operating, p. 28
Jan. 16th: Qualifying Run, 2130 EST, W1AW, W0TQD
Jan. 18th: Simplified Approach . . . p. 34
Jan. 24th: The World Above 50 Mc., p. 38
Jan. 26th: "Corkey" — A Tubeless Automatic Key, p. 44
Jan. 29th: Constant Modulation of the 815, p. 48

YL-OM CONTEST

The Young Ladies' Radio League announces its second annual YL-OM Contest, in which all OMs and YLRL members are cordially invited to participate. **Time and dates:** 6 p.m. EST Saturday, February 24, to 11:59 p.m. EST Sunday, February 25, 1951. **Eligibility:** OMs: Any licensed OM. YLs: Must be members of the YLRL. **Operation:** Use 'phone, c.w. or both; cross-band and c.w.-to-'phone QSOs permitted. **Exchange:** QSO number and location. **Scoring:** one point for each station worked (YL to OM, or OM to YL only); multiplied by the total of states, Canadian provinces, and countries (outside W/VE) worked. Stations and multipliers count only once, regardless of bands or modes of operation used. **Logs:** Must be postmarked not later than March 3, 1951, and mailed direct to Dorothy A. Willett, W8UDA, Vice-President YLRL, 3513 Fleming Rd., Flint 5,

Michigan. Confirmations, while not mandatory, will assist in cross-checking if necessary. Please send your logs in, regardless of the size of your score. **Prizes:** Highest OM score, a gold loving cup donated by W8UDA; highest YL score, a silver loving cup donated by W1BFT; both cups to be awarded on a yearly basis, with a three-time winner obtaining permanent possession. Awards will be made to the highest 'phone scorers as well as to the highest c.w. scorers, both YL and OM and, in addition, to the second- and third-place scorers in the over-all competition.

W1AW OPERATING SCHEDULE

(All Times Given are Eastern Standard Time)

Operating-Visiting hours:

Monday through Friday: 1500-0300 (following day)
Saturday: 1900-0230 (Sunday)
Sunday: 1430-2200

General Operation: Refer to page 61, September, 1950, QST, for a chart showing W1AW general operation. This schedule is still in effect and is not reproduced herewith for space considerations. Mimeographed complete master schedules of all W1AW operation in EST, CST, MST, PST or GCT are available upon request.

On Saturdays and Sundays during which official ARRL activities are being conducted, W1AW will forego general-contact schedules in favor of participation in the activity concerned.

Official ARRL Bulletin Schedule: Bulletins containing latest information on matters of general amateur interest are transmitted on regular schedules:

Frequencies:

C.W. — 1887, 3555, 7215, 14,100, 28,060, 52,000, 146,000 kc.
'Phone — 1887, 3950, 14,280, 29,000, 52,000, 146,000 kc.

Times:

Sunday through Friday, 2000 by c.w., 2100 by 'phone.
Monday through Saturday, 2330 by 'phone, 2400 by c.w.

Code-Proficiency Program: Practice transmissions are made on the above-listed c.w. frequencies, starting at 2130, Monday through Friday. Speeds are 9, 13, 18, 25 and 35 w.p.m. on Monday, Wednesday and Friday, and 15, 20, 25, 30 and 35 w.p.m. on Tuesday and Thursday. Approximately ten minutes of practice is given at each speed. Next certificate qualifying run from W1AW and W0TQD is scheduled for January 19th; from W6OWP, January 5th.

160-METER DX TESTS

As announced in December QST, East Coast U. S. A. amateurs and English amateurs have arranged a series of 160-meter DX tests during January, February and March. The following periods have been fixed for the main tests: January 14th and 28th, February 11th and 25th, and March 11th, attempts at DX contacts to be made between the hours of 0500 and 0800 GCT each day. Two special trial periods are scheduled: January 20th and 21st, February 17th and 18th, between 2200 and 0200 GCT. W and VE stations should call DX on the hour and each succeeding ten minutes thereafter, with the DX stations calling W and VE at five minutes past the hour and each succeeding ten minutes. For example, W/VE stations will call CQ DX from 0500 to 0505; from 0505 to 0510 the DX will call CQ W/VE or call those W/VE stations heard in the previous five-minute period; thus each station alternately calls for five minutes and listens for five minutes. Contacts should be made short to give as many stations as possible the chance to "get across."

It is expected that there will be South American, African and much European DX on the air. G stations will be found from 1717 to 1795 kc., with most stations operating between 1775 and 1795 kc. Other DX will be found below and above the U. S. band segments. Amateurs who have collaborated in arranging the tests anticipate favorable conditions and the possibility that new records will be made.

Reports from all participating W/VE stations should be sent to Stewart Perry, W1BB, 36 Pleasant St., Winthrop, Massachusetts. W1BB will supply log and report forms to all amateurs who request them. DX stations may send their reports to Austin J. Forsyth, 49 Victoria Street, London, S.W.1, England.

Station Activities

• All operating amateurs are invited to report to the SCM on the first of each month, covering station activities for the preceding month. Radio Club news is also desired by SCMs for inclusion in these columns. The addresses of all SCMs will be found on page 6.

ATLANTIC DIVISION

EASTERN PENNSYLVANIA—SCM, Jerry Mathis, W3BES—GJA has been appointed EC for Lancaster and assisted in the S.E.T. with 14 members of the AEC. He used his 144-Mc. rig mobile marine and seven other field units for the test. PSB now is mobile on 28 Mc. PDJ helped LVF and BYB with the cross-country chess matches. Although not reported, members of the Philadelphia Wireless Assn. also stood a trick at the chess club. A v.h.f. link from the chess club to the 14-Mc. c.w. station of LVF did the trick. QZY, of North Hills, is a new YL ham. The Abington Township ARA is trying to build up its membership. This club is for the younger set and anyone interested may contact PDJ. CUL says, "Traffic, traffic, and more traffic." That's no lie, look at the total. The Philadelphia Area CRC Hamfest was held Dec. 2nd at the Exide Athletic Club, Rising Sun and Adams Ave., Philadelphia, Pa. There were club-sponsored displays, contests, and prizes. Also cats, speakers, and ragchews. BIP and OAG are new ORS appointees. QLI did very well in the CD Party for a newcomer. There were a gratifying number of reports this month but few had remarks for the section report. Also club activity reports are not coming in these days. Clubs, please have your secretary or publicity agent supply me with information on your club for publication in this column. Traffic: W3CUL 3457, N1H 281, ANK 101, AXA 80, OML 48, PDJ 38, QEW 29, CAU 5, GJA 4, EAN 1.

MARYLAND-DELAWARE-DISTRICT OF COLUMBIA—SCM, Eppa W. Darne, W3BWT—The Chesapeake Amateur Radio Club's Oct. 3rd meeting included a talk by E. L. Crosby, jr., on "Application of Subminiaturization Techniques to Ham Radio." The Club meets at 120 W. Penn. Ave., Towson, Md., the first and third Tuesdays of each month. At the second October meeting JQB spoke on "The Ionosphere and its Function in Amateur Radio Transmission." The subject on the program of the Rock Creek Amateur Radio Association's Oct. 13th meeting was "Filters" by OMN and EUQ. At the second October meeting an auction of spare gear was held by the membership. At the Oct. 14th meeting of the Washington Radio Club a series of talks on Emergency Operations was presented. The meeting was held at PZA, the Red Cross National Headquarters disaster station in Washington. At the Oct. 28th meeting CDQ and Mrs. Briggs, ex-CAB, told of their trip to Europe and showed colored slides. CDL, EC for the Washington, D. C. Area, reports a simulated Emergency Test on Oct. 15th. The D. C. Red Cross Chapter was represented by QDI and the D. C. Red Cross Chapter First Aid Corps. Members of the Washington AEC, with mobile units of the Washington Mobile Radio Club, and the Capitol Mike and Key Club were alerted and dispatched to the area hospitals, scene of the disaster, the several Red Cross buildings, and two nearby Maryland hospitals. The entire test was operated smoothly, was very successful, and was very favorably received by the D. C. Chapter Red Cross officials. The U. S. Naval Academy Radio Club, ADO, is active again on 28 Mc. with a four-element rotary beam, and on 7-Mc. c.w. The Club conducts code classes nightly, theory lectures once a week, and Sunday evening meetings featuring movies, an outside speaker, and club business. The members are doing extensive building on 3.5-, 14- and 144-Mc. equipment. Midshipman Tom Gillen, 8YNZ, president, reports the Club keeps general operating schedules each week day 1800-1830 and says traffic schedules are kept Mon., Tues., Thurs., and Fri. on 1830-2000 and 3500. QCB is working hard for his WAS certificate. OFU has been appointed ORS. KBE recently celebrated his 70th birthday and a large number of Washington gang was on hand to see that it was done properly. KWF went to West Virginia for the recent V.H.F. Sweepstakes, thereby enabling many of the 144-Mc. gang to work that State. LMC continues his fine work with radioteletype equipment. ACM and HQD have left for active duty with the armed forces. LZM is newly-appointed ORS. IL visited League Headquarters

and WIAW. LUN has been away from home for some time on business but has returned. OFU is changing his keying system. JHW is having trouble with his large rig and is on 14 Mc. with a small rig. MCG has been building a new rig. CDL has a new Gonset tri-band converter in his mobile station. CDQ is back on 14-Mc. c.w. with new antenna. Traffic: W3GZH 364, ECP 238, VES 181, LZM 47, NNX 30, FQB 29, PYW 26, MCG 20, JZY 18, DVW 17, BWT 8, JHW 4.

SOUTHERN NEW JERSEY—SCM, Dr. Luther M. Mikarian, W2ASG—The SNJ Net meets at 1900 Monday, Wednesday, and Friday on 3700 kc. The Burlington County Emergency Net meets at 2200 Wednesday at 3695 kc. 4JTC/2 is an active amateur at the Naval Air Station in Atlantic City. EKB has a brand-new rotary beam on the roof of Bachelor Officers' Quarters. CSA is on TEPN and is rebuilding. UKS is active in Ocean City Emergency Corps. PFF had 89 QSOs in the last CD Party. YEN has a Helical rotary beam on 14 Mc. The SJRA has formed an emergency net in Camden County under UCV's leadership. The following mobile stations participated in the recent field exercises: ZAA, ADA, SPV, YPQ, PPT, YRW, CPK, WVN, and OWA with 29-Mc. rigs, and BDI, JAV, JRO, OQN, PAU, PFQ, PML, VX, and UCV with 144-Mc. rigs. Traffic: W2ZVW 186, ZI 61, CSA 38, PTT 36, CFB 28, RG 21, ZYX 16, ASG 12, ADY 11, HAZ 3, ORS 3.

WESTERN PENNSYLVANIA—SCM, Ernest J. Hlinsky, W3KWL—SEC: OMA. PAM: AER. RM: GEG. NUG. The Western Penna. traffic net again is in full swing, with NRE, GEG, NUG, CUL, NDC, and VNL handling traffic. TFX, up Erie Way, reports the following: WBA is teaching code classes again. The RAE made a tour of local b.e. station WERC. PAQ, as entertainment chairman, is doing a fine job for his club. QN, EC of Erie County, went into high gear on the S.E.T. The Radio Club of Erie reports a successful S.E.T. with more than 200 messages handled. Thanks to the following for their fine showing in the Tests: QN, TXZ, PIY, KKT, POS, LKJ, QMY, KLD, OIH, OIE, KJT, ODF, PSI, NXX, QZE, MS, PIX, and KKK. TXZ is heard on 28 Mc., and QPP likes 27 Mc. Heard on 144 Mc. were QKI, WBM, and NOJ. KWH's bulletin, *Kilo Watt Harmonics*, reports the following club officers: RXT, pres.; NKM, vice-pres.; LOR, sec. sec.; DNO, corr. sec.; RIK, treas. UAK, NUG, and KWH ran a close race on the ground wave. MTP's n.f.m. exciter is working swell. OKU is on 160 meters. NFO is rebuilding NGA's rig. The ATA News lets us in on a few secrets. The following are new officers of ATA: UHN, pres.; GPQ, secy.; UL, treas.; AAX, NUG, BSO, and KWA, directors. Nice going, OMA, on the way you handled the S.E.T. It is with deep regret we are passing the passing of a swell guy and a real radio amateur, FCO. Down Jeannette way the busiest guy is UVD, with farm work, studying, and a little time off for radio. QOS, a new ham in Big Run, is looking for information on 160 meters. Welcome to another new station in St. Marys, QVL. NCJ works 7 Mc. and reports that KKS is operating from State College. AER reports that DX on 14 Mc. is opening up. OFU scored 25,000 points in the CD Party. IYR has his new VFO and oscilloscope are doing FB. LSS is doing swell on 28-Mc. mobile. Recently CJF, working mobile on 144 Mc., worked WBM in Erie, a distance of some 90 miles, using a 522 with a folded dipole on whip antenna. LNA is going ultra modern on 144 Mc. Traffic: W3NRE 532, GEG 512, NCD 102, UHN 28, LMM 23, MIZ 22, AER 12, NCJ 8, KWL 7, LSS 4, ODU 1.

CENTRAL DIVISION

ILLINOIS—SCM, Lloyd E. Hopkins, W9EVJ—Section Nets: IEN, 3940 kc.; ILN, 3515 kc. SEC: QIL. PAM: UQT. RM: BUK. The Du Page County Civil Defense Organization is making excellent progress under HXE. LIL and LHS are new hams in Springfield. JJO is new ORS. KJ is busy fighting parasites. LIN has switching arrangement on crystals around ILN frequency. GDI enjoyed the CD Party. FRP snagged WAS with 28-Mc. phone endorsement and ordered new 76A-2. EJX has been forced to drop radio because of his health. Ex-91VN now is 6JVE at Travis. AFB. BPU has new 310B-1 exciter. ZQT proudly announces the birth of a daughter. WFS is teaching code and amateur radio at Austin High School in Chicago. IAY grabbed a Class A ticket and became a member of ROC and ILN. DRO, OEV, TWM, and WTF have gone home. HMM has a new daughter. WTF is home from the hospital. KCM sends news of the Kishwaukee Radio Club. New officers are WTF, pres.; BYB, vice-pres.; OEV, secy.; KCM, treas. NN spent the month doing chores around his new home. BON is operating on 10, 20, and 160 meters. UPB is the proud owner of an HRO-50T. BGN is operating intermittently while working on TVI-proof rig. New officers of the Sangamon Valley

Radio Club are WPP, pres.; KQX, vice-pres.; GOJ, secy.-treas. SXL reports the local club obtained its own club house. FFR worked all the bugs out of final. HKA returned from Michigan after nine weeks. CRD made a nice showing in the recent Frequency Measuring Test. FEC has a beautiful portable transmitter and receiver for disaster work, a VFO on 7 Mc. which weighs 19 lbs. complete. DIU gave a nice talk on emergency-powered gear at a recent meeting of the North Suburban Radio Club. FNG reports new speech amplifier on 300-watt rig and 60-foot antenna tower. SYK reports the Peoria gang is active in emergency work and training new hams. The Tri-Town Radio Amateur Club paper, *The Oscillator*, contained an excellent article about amateur radio and civil defense. Active ECs in Cook County at this writing are QN, EBZ, ING, JIE, SXJ, and LLX. If in doubt about your EC write your SCM or SEC. BGX at Northwestern Technological Institute is on the air Mondays at 11:30 CST and looking for other college stations. Traffic: (Oct.) W9YIX 167, BUK 150, AXF 92, BGN 73, APK 60, KJ 59, PEK 43, JMG 37, IAY 29, ZQT 28, EVJ 25, FRP 23, HKA 22, LIN 10, HOV 7, JJO 7, PNG 6, FFR 4, JNC 2. (Sept.) W9MGM 34, DUA 28, JJO 1.

INDIANA — SCM, W. E. Monigan, W9RE — PHV, of New Castle and Jasonville, has accepted appointment as Section Emergency Coordinator for Indiana. Applications for appointment as Emergency Coordinator in those localities where no Coordinators have been appointed should be forwarded to him, c/o Public Service Company of Indiana, New Castle, Ind. Where a local Coordinator has already been appointed, the application should be forwarded to the local Coordinator. Let's go, fellows, our goal is an active Emergency Coordinator in each county in our State, plus an assistant in each locality, plus an effective and efficient back-up of emergency-equipped crews to carry communications wherever and whenever needed. The Martinsville Amateur Radio Club has been affiliated with the ARRL. The Club put on a radio program for the Kiwanis Club. JVE installed a five-element yagi for 144 Mc. GZQ attends Purdue and is in the Signal Corps ROTC. YEO reports a new girl harmonic. The Fort Wayne Radio Club furnished communication for the Fort Wayne Armistice Day parade. PMT hopes to have more power soon. JIX has moved the transmitter upstairs. QEK reports the arrival of a second harmonic. BKJ says time passes so fast he can't keep hands on his watch. LB!!! is new at Fort Wayne. The Michiana Amateur Radio Club held a very interesting dinner meeting in Mishawaka. The Mobile Club reports that Fort Wayne is too cold in September and will wait until summer for a return visit. The Indianapolis Radio Club put on an interesting display at the Indianapolis Hobby Show. The Indiana Radio Club Council is planning a convention to be held in Indianapolis during 1951. CKP has a new daughter. UVN visited in W9-Land during vacation. UMS and UNT planned a club traffic station at the Evansville Fall Festival. ERN teaches code and radio to would-be hams. DGA is RM for Southern Indiana. Traffic: (Oct.) W9DGA 838, QJW 664, TT 526, YB 201, BKJ 70, ZVF 43, DOK 32, JIJW 32, NZZ 26, RE 26, K9WAA 21, W9DUD 14, YME 12, KOA 4, BBSZ 2, NH 3. (Sept.) W9QJW 521, TT 338, ZVF 117, DGA 109, NH 63, DOK 27, W9DUD 12, RE 8, K9WAA 7, W9RZS 6.

WISCONSIN — SCM, Reno W. Goetsch, W9RQM — SEC: YYY. RMs: LFK, CBE, CWZ, SZL. PAM: ESJ. C.w. net (WIN) 3625 kc., slow speed, 6:30 p.m.; regular, 7:00 p.m. Phone net (BEN) 3950 kc., 6:00 p.m. Net certificates (BEN) have been issued to SYT and IJT. Since working on the third shift, SUF has been able to work the nets to swell his traffic total. OVO is having lots of fun on 3.85-Mc. mobile. CWZ spent three hours in the CD Party to net 52 contacts. FCF has been active on the BEN. UFX has a new final with a pair of 4-250As. ECs in the following cities had organized participation in the Simulated Emergency Test: CWZ, Stevens Point; GPU, LaCrosse; IVE, Appleton; MUM, Eau Claire; OVO, Door County; NRP, Watertown; RUF, Milwaukee; SZL, Racine; UFX, Madison; VHA, Wausau; ZVY, Neenah-Menasha; Manitowish, Oshkosh. IQM is new ORS. HDZ works TQ regularly on 144 Mc. HQT, ERW, CBE, CWZ, KKK, WJH, NRP, UIT, FXA, HDZ, IQW, and RQM were active in the October CD Party. CSU and CIH had accuracies of .00002% and .00004% respectively in the September F.M.T. We welcome to the section 9MLT, now at River Falls. IVE is new OPS. DCK, VHA, OVO, YYY, and JXY have circularized hams in Northern Wisconsin in an effort to organize a 28-Mc. emergency net. On Oct. 16th 9BJV, South Dakota, originated a message at 1910 which was relayed on 144 Mc. to 5JBW, in Louisiana, with the answer back and delivered in South Dakota at 2225. Participating in this 144-Mc. relay were AFT, FPE, 9JHS, and 8SV. The Wausau Club went all out in the SS with the entire Club split into two competing teams. IXA's operating slowed up for duck and deer hunting. UIT has missed only one OBS schedule in the past year. ZTO has worked 100 countries. FXA and JSE have been representing Wausau on WIN. Traffic: (Oct.) W9ESJ 559, SUF 385, CBE 227, LFK 113, FXA 107, SZL 84, RQM 60, IQW 49, OVO 46, CWZ 42, FCF 39, UFX 39, VHA 35, IQM 28, HDZ 21, IXA 18, HQT 16, YCV 16, BZU 12, NRP 11, UIT 10, ERW 2, GPU 2. (Sept.) W9UIT 9.

DAKOTA DIVISION

NORTH DAKOTA — SCM, Rev. Lawrence C. Strandenaes, W9JWY — Every ham in the section is urged to register in the Emergency Corps and to have good equipment capable of working 100, 10, 6, and 2 meters on a portable or portable-mobile basis, independent of commercial power source. SSW is the SEC. Back in Bismarck with the CAA is KZL GWU, now 8FXX, writes from Chancellerville, Ohio, that he is employed with the Armo Steel Co. of Zanesville. GZD is with the CAA in Pembina. BPO has four-element 28-Mc. beam up at Jamestown College. From Grand Forks DM reports that high school instructor CBJ has several students in a code and theory class, and that "10 or die" RGT probably will do the latter now that 10 meters is gasping near the bottom of its 11-year cycle. BRS, a new call at Portal, is on 3.5, 7, and 14 Mc. with 35 watts. Traffic: (Oct.) W8SW 77, CAQ 11, LHB 11, JWY 3. (Sept.) W8LHS 11, CAQ 4.

SOUTH DAKOTA — SCM, J. S. Fosberg, W9NGM — Asst. SCM, J. W. Sikorski, 9RRN. The following report was written by RRN: The Black Hills Amateur Radio Club is trying to get the call BLK, in honor of the late Bob Kimber, Alternate Director of the Dakota Division. The Black Hills Club now is the largest in South Dakota, with 49 members. GWH has returned home after six months' duty at Port of Entry on the Canadian border. PHR, RWE, and RRN have new three-element 28-Mc. beams. CRY, the last remaining eligible bachelor in the Sioux Falls ARC, deserted the ranks in October. New call: CAR, Mitchell. Traffic: W9PHR 118, CAR 9, RRN 5.

MINNESOTA — SCM, John B. Morgan, W9RA — Acting SCM, Charles Bove, 9MXC. Asst. SCM, Jean Walter, 9KYE. SEC: BOL. PNQ is attending the Riverside Academy in Gainesville, Ga. HPJ has accepted a position with the CAA in Cleveland, Ohio. DZS now has an antenna farm with rhombics and beams. Hugh also has been giving 3.85 and 14 Mc. a whirl. WQM, at Hillman, has been working the twin cities on 28-Mc. ground wave. TKX is putting up a 14-Mc. rotary beam. EA now is operating aboard ship on the Pacific and can be heard on 28 Mc. from 6CKO or 9EA/MM. The Twin City mobiles and portable stations are being organized to cooperate with Civil Defense. The Hennepin County Sheriff's office has been planning on deputizing all who sign up. This added authority will help them in performing their duties in case of an emergency. CAT is a new ham and can be heard on 7 Mc. AUI is the publisher of *Splatter*, the official paper of the Minneapolis Radio Club. If the paper gets much bigger Alex will have to put it in magazine form. OBM has a new pole for his 14-Mc. beam. ZKV worked a W5 airborne mobile on 14 Mc. YBM has been playing around with 144 Mc. IXR now has a new 32V-2 which has been debugged for TWI. MLT now is attending the U. of M. and has been operating K9WAW. BGY burned up his HV transformer and had to go to low power. HEO is the new Net Control Station on 3.85-Mc. phone. MXC is first alternate, CWB is second alternate, and YBM is third alternate. We need more members in the emergency nets. Join now. The 3.5-Mc. c.w. net meets evenings at 7:00 p.m. on 3795 kc. The 3.8-Mc. phone net meets at 12:05 noon and 6:00 p.m. on 3960 kc. The 160-meter net meets evenings at 6:45 p.m. We wish you a Happy and Prosperous New Year. Traffic: W9ITQ 406, KFF 155, HEO 54, BGY 38, RXL 34, EPJ 33, MXC 31, EA 26, CWB 13, MXX 8, SYW 6.

DELTA DIVISION

ARKANSAS — SCM, Dr. John L. Stockton, W5DRW — The Little Rock Radio Club was reorganized with EEJ, pres.; and LCO, secy.-treas. The Club transmitter, ABL, is being rebuilt. IGM is Class I OO, and is active on 3.5 and 3.85 Mc. MPG has 99 countries confirmed for DXCC. NSW, NLL, DFX, and BAB are new ECs. ONL has been working some 14-Mc. DX. LUY is a freshman at U. of A. DLAA, W5AB, and NRB vision BAB, DRW, and DYT. MPJ is in JAZ2-Land with the Navy. MPD and NBR are in the Navy expecting to be DX soon. OCX has TBS-50. OQS is on 3.5 and 7 Mc. at the U. of Ark. OVZ works 28-Mc. mobile while at John Brown University. BRW is back on the air and also working 28-Mc. mobile. ICS is building new 813 final. LNW is mobile on 3.85 Mc. EA is busy with license-tag deal. There were 170 replies from 412 cards sent out regarding the license registration for amateurs in the section. ICS deserves a vote of thanks for addressing the 412 cards personally. HOT, PZB, RER, and RET are active on 28 Mc. OOS is QRL at Hendrix. HNU is building a kw. rig. PUN is on 3.85 Mc. LUX is building portable 3.5- and 3.85-Mc. rig. HPL is working at KFPW. Traffic: (Oct.) W5FMF 322, DRW 187, MRD 104, LUX 37, ONL 37, EA 20, OXR 15. (Sept.) W5ONL 15.

LOUISIANA — SCM, Robert E. Barr, W5GHF — NG has been appointed ORS for the Baton Rouge Area. NG also is the RM appointee for the State. MXI has enlisted in the Navy and is stationed in San Diego. EB now has 80 confirmed countries, with his fellow townsman, MWE, close behind with more than 60. RLS is the EC for West Monroe. He is running 600 watts on 7 Mc. at the present time. November 15th was set as a deadline by the FCC for all the

fellows in the Monroe Area holding Class C tickets to appear at the new examining point at Jackson, Miss., to secure their Class B or A tickets. Among those busily preparing for the tests were IDK, HOS, PZL, RLS, RQV, RQW, JEY, QEH, and PRW. PLQ is the latest ham to become Class A in Monroe. MUZ, the Ouachita Valley Amateur Radio Club station, has moved into the new quarters in the Recreational Center in West Monroe. MWE has completed a new band-switching exciter and is on all bands c.w. with 500 watts input. Thanks to PZL for a nice report from the Monroe Area. ZS has returned to 3.85 Mc. after an absence of several months. ZAB takes traffic on a tape recorder. PUV puts out a nice signal on 28.8-Mc. phone from Cotton Valley. VRA is on 3.85 Mc. from Shreveport. SAU is a new call heard on 3.85 Mc. from Bossier City, and previously was a W9. ROQ, RVR, RQV, RRO, SAY, and RKZ are new hams in Baton Rouge. QIZ moved to Oxford, Miss. HEJ/HEK and GHF had bad luck with new-fangled antenna experiments. Traffic: W5NG 148.

MISSISSIPPI — SCM, J. C. Wallis, W5DLA — QMQ has new 28-Mc. beam. He also has qualified for EC, ORS, OES, and OO appointments. RKO is handling traffic in "TXN" Net. WZ was active in the CD Party, working c.w. and phone. JHS is very busy with traffic schedules. KYC reports the Hattiesburg Club made a fine showing in the Simulated Emergency Test. The Keesler Club also turned out a nice job in their set-up for the Test at Wiggins. ZVO is rebuilding; he plans to use 814s in line. LAK is portable at Port Arthur College. MJL is in ROTC at "Ole Miss." Traffic: W5JHS 235, WZ 132, QMQ 56, RKO 13, KYC 10, ZVO 1.

TENNESSEE — SCM, D. G. Stewart, W4AFI — Reports indicate the S.E.T. was highly successful in our section. One of the most important phases of amateur communication is emergency and disaster relief work. All amateurs are invited to become members of and participate in Emergency Corps activities in this section. It is desirable that each EC or AEC member meets one of the section nets to procure training in net procedure and traffic handling. Contact your local EC, SEC, or SCM and let's get statewide representation. BAQ was QSO Jacksonville, Miss., on 144 Mc. LUH was active in latest Florida hurricane as NCS on secondary net. IIV worked KJ6AJ on 28-Mc. mobile. HHK is new 28-Mc. mobile around Memphis. OGG is active again on 3.5 and 7 Mc. PMR and POO are sporting new Class A tickets. FLW was active in S.E.T. with mobile rig. PL made a flying visit with FX and AFL Q1 runs weekly schedule with OQ5EB keeping EB in touch with his church. OQ5DQ was a recent visitor with QT. DIJ is battling new electronic key. FFV is operating portable KL7. ETN and HHU represent Chattanooga hams in local Civilian Defense. Our hats are off to MGQ for his splendid idea and efforts in securing a transmitter for RLF. LUH is new Alternate NCS for phone net. FVM is building cliche filters for BC-610. PCU visited AFL NQ mobilized throughout parts of Eastern and Middle Tennessee. Traffic: W4PL 2218, AFX 334, BAQ 122, LUH 42, AFI 37, AEE 25, HHQ 19, FX 18, OOA 18, RDK 15, NNH 10, JD 8, NDC 8, PMR 6, RPT 4, DFR 3, FHP 3, FLW 3.

GREAT LAKES DIVISION

KENTUCKY — Acting SCM, Rev. C. Lynn White' W4NBY — MWX got his 35-w.p.m. sticker. RYM is a new Henderson station. OGB, Henderson EC, alternates nights on KYN with MWX. OGB soon will have kw. on 3.5 Mc. KYN now has KTA to handle Northeast Kentucky traffic. CDA has resigned as Route Manager because of other duties. Congrate, Al, on a job well done. KWO is on with low power and hopes to have ART-13 perking soon. Our sympathy to KWO in the passing of his sister. The Kentucky Corn Crackers Net, 9445 kc., 8 a.m. EST, is increasing daily in the number of stations. QNL JPV has a new 10/20-meter beam. NBY had a "big meetin'" in his church that kept him off the air part of October. LTQ, secretary of the Owensboro Radio Club, died October 31st of polio. Our sympathy to Rose and the children. Activity on KYN is increasing with the old-timers and some new stations. QNI regularly. KYB, 3890-kc. phone, has not been reactivated but will open before next report. YPR is one of Kentucky's most consistent hams. Call him anytime on 3600 kc. or 40 meters. Thanks, gang, for the traffic and activity reports. Traffic: W4WWT 287, MWX 46, CDA 40, NBY 29, OGB 17, YPR 17, BXU 16, JCN 8, NWQ 7.

MICHIGAN — SCM, Robert B. Goetz, W8AAQ — Asst. SCM c.w. J. R. Beljan, 8SCW, SEC: GJH. PAMs: YNG, TTY, RMs: UKV, YKC. YKC has assumed active control of the 7-p.m. QMN and the nice traffic total demonstrates the efficiency of his operations. TTY has changed his status from Assistant SCM to PAM for the Upper Peninsula and thinks his efforts will be more helpful with the phone net problems. DLZ has given us some thought-provoking ideas in the article "Open Letter to Certain Amateurs," which deserves your special attention. There are many appointments through ARRL for you, and after getting the recognition don't fail to make your regular reports. SCW wishes to congratulate the QMN members for their constructive efforts and particularly mentions the fine liaison with "RN." 2RTZ/8 made BPL and notes

Michigan makes the third ARRL section in which she truly can rate an "ORS." CPY reports a very satisfactory rejuvenation of emergency activity in the Straits Area, while FWQ spent most of his time during the S.E.T. convincing the spectators the drill was of a test nature only. South Macomb ARA officers are BDF, pres.; NML, vice-pres.; BGY, secy.; DAW, treas.; and VQD, EC in charge of activities. New officers for the Grand Rapids ARA are COF, pres.; BJD, vice-pres.; FNH, secy.; PTO, treas.; and EXO, in charge of club activities. SWG finds time to report into the IORN and is proud of his "Rusky QSL." ELW is improving his mobile set-up. EXZ, with 60,840 points in the CD Contest, looms very high in the State's standing. DSE rejoins the traffic-handling ranks again. UKV has completed a new r.f. chassis for his rig and is working on a screen-grid keying system. DAP has moved to Kalamazoo but has reestablished his connections with QMN and RN. COW still is using temporary equipment on 3.85 Mc. OAF reports a very fine ZL contact on 3.5-Mc. c.w. with a rig that gives him very poor results in Michigan. ZCI is building a modulated r.f. test source. SS is working 160 meters while changing the final of his BC-610 to accommodate a 4-250A. QGZ is fulfilling his duties as OBS very effectively. Traffic: RUC 364, HSR 319, SWG 228, ELW 228, EXZ 117, HOP 110, WXO 95, DSE 58, QBO/ATB 55, FX 53, IV 33, TQH 32, UKV 32, WVL 30, DAP 25, YNG 24, BEU 14, TZD 13, COW 12, OAF 11, FWQ 9, ZCI 4, HKT 3, SS 3, QGZ 2.

OHIO — SCM, Leslie Misch, W8HGW — Asst. SCMs, C. D. Hall, SPUN; J. E. Slinger, 8AJW, SEC: PFB. PAM: PJN, RMs: PMJ and DAE. New appointments are ETN has OPS and LYD as OO (Class I). Congratulations to YCP and DZX for making BPL DMJ has made DXCC on phone. DAE has been appointed Net Control Station for TLAP. DSX is building new kw. c.w. rig. EZE is very QRL with college. ICC has new 28-Mc. three-element beam. ZQU won a prize for the most attractive 400-Mc. antenna during the DARA outing. The Case Radio Club emergency net meets at 2100 Tuesdays on 1820 kc. Participants in the Canton Area Simulated Emergency Test were BML, TTI, AHD, ETK, YKA, EAR, TND, AUF, and DFG. DPC now is on 28-Mc. mobile. CEA has moved to Springfield. ACE now is a proud papa. New members of the DARA are FWP and FTZ. The Oakwood YMCA (Dayton) could use old Handbooks and equipment. Contact ENH. EZL has been called into the service. NYSK, West Park Radios, and PKZ are ODX, SBB, GMS, and FQM. VZE is building 200-watt 144-Mc. rig. BMC, CSM, and BLN are having private 144-Mc. WAS contest. EWC is experimenting with 28-Mc. vertical for DX purposes. WFS received his ticket at the tender age of 67. According to latest news releases the boys at the Cincy Hamfest didn't blow up the Voice of America tower, as rumored. Welcome to the Belmont County Amateur Radio Club as a new ARRL affiliate. FJR, age 15, is the youngest 28-Mc. "man" in the Cleveland Area. New officers of the Central Ohio Radio Club are ARP, pres.; ZLR, vice-pres.; CSY, secy.; WYH, treas.; WZ, NPP, and CNY, directors. Active stations in Franklin County Simulated Emergency Test were EYE, EA, APF, WYH, NNU, WZK, ZCQ, BMP, DWP, ZCK, WRL, FYW, IVC, ABO, AER, WAB, and CPA. S.E.T. point total was 142. New CACAR officers are LYD, pres.; WDQ, vice-pres.; OPC, secy.-treas. pro tem. DMD is nearing DXCC on phone. JNF mailed 7500 QSLs during October. PFH has a new 28-Mc. beam. New Class A tickets were received by BAG and WLW. According to PBZ, EC, and LYD, AEC, the Cuyahoga County Emergency Corps was among the first to get its Simulated Emergency Test results to American National Red Cross and ARRL. JBI has moved from Columbus to Cleveland. DXO has received his WPR25. Traffic: W8YCP 618, DAE 231, DZX 171, UPB 155, TAQ 92, AJW 73, WE 68, DSX 65, SFI 30, AL 27, QIE 20, GZ 17, ZIF 15, WAB 13, PUN 8, DXO 6, DZD 6, WAV 4, ZJM 3, LBH 2, EZE 1.

HUDSON DIVISION

EASTERN NEW YORK — SCM, Fred Skinner, W2EQD — SEC: CLL. This will be my last report to you as SCM. George Sleeper, CLL, has been elected to succeed me. Thanks to all of you for the fine cooperation and help during my term of office. I am sure you will give the same to CLL. CEV is at R.P.I. FGL was reactivated on 3.5 and 3.85 Mc. WGE is trying clamp modulation. FVP is sporting 30-w.p.m. station. ESI and his XYL have 10 watts on 160 and 80 meters. ANB is on with new 32V-2. The AARA is organizing for a hobby show under AWF. JQI and his XYL licked TVI. TYC is assistant manager of NYS. NYV wants applications for OPS appointment. PIE is EC for Harrison. OVV is EC for Watervliet. ANB is EC for Singersland. HTU is EC for City of Albany. AAO is EC for Elmsere. GTI is EC for Delmar. ITF is EC for Voorheesville. RMM is EC for Colonie. ILI is EC for Rensselaer County. WIK is EC for Rensselaer City. YXE is EC for Troy. VP is EC for Ulster County. TYC is new RM. CLL is OPS. Endorsements went to GTC as EC for Schenectady City and CLL as OO. Traffic: W2CLL 279, TYC 176, PHO 110, LRW 103, EFU 100, BRB 63, CEV 25, FVP 12.

NEW YORK CITY AND LONG ISLAND — SCM,

George V. Cooke, W20BU — Asst. SCM, Harry Dannels, 2TUK, SEC, BGO, RMs: BYF, PRE, PAM; GSC, In Nassau the Simulated Emergency Test included operation of 3.5-Mc. c.w., 3.85-Mc. 'phone, 7-Mc. c.w., and 28- and 144-Mc. 'phone stations with full cooperation of the Red Cross. Fifty-eight stations participated, including 13 mobiles, 2 portables, 1 maritime mobile, and 3 walkie-talkies. Ten special Red Cross messages were handled with dispatch and 56 messages went to ARRL. The city-wide test, calling on all mobile stations in N.Y.C.'s five boroughs, brought 37 mobiles and 3 walkie-talkies to City Hall, where operators were handed sealed envelopes and pursued their tasks in the Test. An "A" bomb explosion was simulated for the mid-town area, with mobiles covering close and distant points to the ground-zero area. Spot fires were reported by walkie-talkies and mobiles, with mobiles on 28 Mc. reporting on traffic movements at the city bridges and tunnels. Traffic left City Hall from the Mayor, Director of C.D., and Red Cross Chapters, all directed to Washington, D. C., and ARRL. Among those participating were ECs IAG, SJC, and VKF; DIC as NCS at ground-zero; UGZ, YHX, BNW, CLD, CHS, DKN, DLP, JSV, KAZ, LGK, OAF, PQO, RWZ, VTR, BRN, EWJ, MYR, AAG, NNS, RVY, EXE, YKI, MSK, MYR, FCS, END, ORM, BNK, ESS, DUJ, HF, VKF, EFA, PJ, and OBU, with JXH maintaining city control for an hour, after which his station became inoperative. Outgoing traffic left the city via 3.5-Mc. c.w. and 14-Mc. 'phone stations. New ECs are FH, Manhattan; VKF, Staten Island; BIV, Brooklyn. SJC and PQG remain in their respective posts as EC for Bronx and Queens. Conferences continue with C.D. officials in each County moving toward ultimate activity for the hams in this endeavor. Suffolk County new list, in action on the County EC, KDB, AJP, EKI, MZB, and PDU as ECs. Their view is to cover the entire county in book-ups with all Red Cross Chapters. AEC nets are operating as follows: Queens 2 meters, 147.6, Mon., 2100; 10 meters, 29,520 kc., 1900 and 2300, Tues. This Net is known as Victor Net with 47 stations, of which 21 are mobiles. The NLI Traffic Net is operating on 3710 kc. at 1930 now instead of 1900. The new time has caused increased interest, and outlets all over the section are needed to clear the volume of traffic. Contact BYF for particulars in getting into the fastest traffic in these parts. BIV received 30-w.p.m. Code Proficiency sticker, and conducts code practice Mon., Wed., and Fri. at 2300 on 28,050 kc. URX worked all call areas with 120 watts on 3.85-Mc. 'phone using s.s.b. TUK, Nassau Club proxy, reports the Club is conducting 20-week code and theory classes. PF is working into the Brooklyn AEC Net and tying same with MARS Net with 'phone-patch for relay purposes. 4MVO, ex-90GN and ex-8PRU, now is in Kew Gardens. EC reports 20 stations QNLing into TLAP so far this season on 3630 kc. at 2130 for the eastern division and 2300 for the western portion. AOD is concerned about cross-polarization on 420 Mc. and reports DOC, DGF, CEF, and himself as the only known active stations on 420 Mc. CEF worked OQ8 10 miles north of Philly, about 90 miles air line. ZFG now is stationed at Fort Dix. OWO and TZU are having fun working 28-Mc. mobile. Two new clubs were formed this month: The Fieldstone Club in Glen Oaks and the Central High School Club in Valley Stream. Section Net certificates were issued to IAG, LGK, DIC, UGZ, and TJA. Traffic: W2VNJ 527, BO 275, EC 190, DRD 151, OBU 133, TUK 75, SJC 58, DIC 42, MQB 33, OUT 30, ICK 16, BIV 12, TJA 12, VBT 12, FF 11, IAG 8, KTF 3, ESO 2, OAF 2.

NORTHERN NEW JERSEY — SCM, Thomas J. Ryan, jr., W2NKD — As a result of discussions held at a meeting of all N.N.J. County Emergency Coordinators in Elizabeth on Oct. 24th, the new N.N.J. Emergency 'Phone Net began operation Nov. 5th at 1000 on 3900 kc. AOW is NCS. All nine counties in N.N.J. are represented in the net. This is a preliminary to the New Jersey OCD plan of nets throughout the State. We are fortunate in that our SEC, VQR, is a member of the Communications Advisory Board of the Office of Civil Defense of N. J. The net meets every Sunday at the above time. The following appointments or endorsements were made during October: ECs: IGX, Montclair; BRX, Asbury Park; K2CM, Morris County; LV, Millburn-Short Hills Area; EGM, Ocean County; DIB, Harrington Park Area; WUG, South Ambus; HL, Perth Amboy; BTZ, Rahway; LOP, Roselle Park; YQK, Passaic; ORX, Livingston; OYH, Morristown; NAK, Jersey City; PJQ, Wayne Township; CTL, Avon; KPC, Secaucus; TZF, Union City; OLV, East Orange; PGI, Irvington; UZC, East Rutherford Area; GNO, Hoboken; CGJ, Ridgewood Area; FVO, Wycoff; ZT, Mahwah; JFQ, Saddle River; ZQZ, Paramus. OUK 3, CFB, GFG, CUL, and KUS, who is our representative in Trunk Line Atlantic-Pacific, OPS, MB, RGV, and CCS, MLW returned to the air on 3.5 Mc. from Cranford. LTP got his British Empire Radio Transmission Award for working 50 British Colonies. Naval Reservist KXT was called to active duty. GPV and VPL are working 144 Mc. GOG is sticking to DX. GRZ splits his spare time between radio and photography. BEP and LBJQ/2 mobile both came to the midnight rescue of the 144-Mc. mobile whose car stalled. VYB and NIY are rebuilding. EBK is back with new rig. DXU is back with the Marines. IIN, Assistant SEC, completed commercial/emergency-power panelboard installation for all-band operation.

ZBY, Hackensack, appointed MBE and BGI as Asst. ECs for Hahnbrouck Heights and Woodbridge, respectively. NCY has new voltameter and grid dipper. EAS and BIM are new members of Slow Speed Net. YOB is working a.s.a.c. VQR and the County ECs planned a practical demonstration of N.N.J.'s ability to cope with any situation. EWZ is building new VFO. With 20 watts on 28 Mc. OUS worked IIFK, HB9ID, 11ABZ, and KH6ABC. CGG, RM of the N.N.J. Net on 3630 kc., keeps early morning schedule with 4PL. SMK of Union City, is newest N.N.J. Net member. 4EEF, ex-2QEM, is chief operator at KAUSA. ANG conducted traffic clinic at the Bloomfield R.C. ECU, the scribe of the *Newark Evening News*, is a regular on the 3900-kc. net. The Nutley Amateur Radio Society has become affiliated with ARRL. YFM is president. Nutley Area men desiring membership are urged to contact him for information. The following is a special appeal to club secretaries. Please send the SCM monthly reports on the activities of your members. Traffic: (Oct.) W2CUI 200, CGG 178, CCS 174, NCY 133, LMB 130, WCL 124, UWK 112, OUS 41, BIM 37, ANG 34, CWK 31, CFB 28, NIY 17, EWZ 15, YOB 7 (Sept.) W2OUS 14.

MIDWEST DIVISION

IOWA — SCM, William G. Davis, W6PP — This has been a terrific month for activities what with the Midwest Division Convention and the Simulated Emergency Test. Iowa showed the highest activity ever in this year's Simulated Emergency Test and messages flowed to the SCM. He was caught with his transmitter down. It's a fine experience to find myself with more reports than I can do justice to. The ILICN had a meeting at AUL's the night preceding the Convention with two Division Directors, Bud, and others present. WMU earned his Class A license at exams held at the Convention. ZFO reports he has a new 500-watt emergency-power unit. BQJ and HMM renew ORS appointments. UHC reports the forming of a new club to be known as the Iowa Great Lakes Amateur Radio Club with the following officers: UHC, pres.; Robert Barrie, vice-pres.; The Herald, secy.; and FKB, treas. The boys at Sioux City were very active in the Simulated Emergency Test. The Club is building a portable rig to be used in emergencies. YNW, ENS, and EOL were called to active duty in the Navy. MHC and UHC are back on the air. The Convention was a great thing for our section at least and, I believe, has inspired all of us to greater activity. Traffic: W6SCA 715, QVA 248, HMM 221, NWF 141, YTA 37, NYX 33, WMU 19, ZFO 16.

KANSAS — SCM, Earl N. Johnston, W0ICV — In the S.E.T. the WARC of Wichita used ten mobiles on 29.6 Mc. Four fixed stations, with SOE the Red Cross control station, and CLN assisting the control station, handled the activities there. The Tri-County Radio Club of Osage City had several mobiles and two battery-operated fixed stations reporting into FLZ, who in turn fed his traffic to Topeka NCS. The KVRG of Topeka had eight mobiles on 29.5 Mc. Net Control operated on 29.5 and 3.85 Mc. with Red Cross station CET assisting net control and WGM relaying outgoing traffic on 3920 kc. to VBQ, in Lawrence, who got it to Headquarters on 14-Mc. c.w. QV took outgoing traffic on 7 Mc. 144 Mc. was used for the first time with KRZ (NCS), UPU, ICV, and AAZ in the net. UPU has been appointed Asst. SEC to help our SEC PAH and will devote most of his time to Civil Defense. AFN, AGC, ICV, WGM and their XYLs got together with QV, UPU, and VBQ at the Des Moines Convention. The K. U. Amateur Radio Club had an E.C. organization meeting Nov. 1st with UPU, WGM, and ICV as guests. The Missouri Valley Radio Club has been formed with twelve members living in the vicinity of Leavenworth drilling every Monday at 2115 on 28.6 Mc. EGE is on 160 meters. The CKRC held its annual fall picnic recently. CBC, Lebanon, is a new call. BGW has new Viking 1YR is on 160 meters. The CKRC had an FB S.E.T. YZX built new electronic bug. AQZ has new NC-173. Traffic: W6NIY 263, FDJ 194, WGM 95, VBQ 88, EJQ 49, KSY 27, ICV 15, BNU 13, LIX 9, KXL 1.

MISSOURI — SCM, Ben H. Wendt, W0ICD — A very unique type of Simulated Emergency Test was conducted by EC RCE and his St. Louis group. Four ham stations were set up at the American Red Cross Chapter 14- and 28-Mc. 'phone was used to direct about 20 mobile units. 3.5- and 7-Mc. stations were used to maintain contact with distant stations by sending appropriate test messages. Typical disasters were simulated in which the various units reported conditions in each area. Local police, fire, and water departments, and the Red Cross were included in the tests, which included a power failure at the control station. Emergency power was used where possible. Thanks to the following hams for a well-executed test: RCE, BAP, BGE, BJL, BUL, CFS, DU, EKJ, EOL, EOW, EWI, EWT, HVJ, JRP, JUY, KID, KUJ, LDO, LLN, MCX, MFG, MLQ, MSF, MXI, NKW, NMR, PBR, PGI, ZEV, RNK, TCE, TPB, TWN, VSY, VVO, WTM, ZIC, ZIP, and ZIG. UXB is having good success with a pair of 813s using Taylor super-modulator. PTG has had good success on 144 Mc. with a 350-mile haul to his credit. QMF heard W6s, W3s, W4, W6s, and W6s on 144 Mc. Mac knows that QRM is possible on 144 Mc. ARH worked VO9AA for his 100th country. (Continued on page 68)

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Bob is one of ham radio's old-timers and is looking forward to receiving the Old Timers certificate. KIK reports 39 contacts in the recent CD Contest. YUI is experimenting with clamp tube modulation, using a pair of 813s. PTG has a new 28- and 144-Mc. beam equipped with rotor and compass. QXO, the EC for Columbia, has appointed JSR as his assistant. This gives each of the clubs there an Assistant EC. WAP finds the new 3.5-Mc. c.w. rig comes in handy for traffic work. PLJ's 144-Mc. rig served him well in affording contacts with 5RCI and 3PGV. CBY is a new call at Charleston. Traffic: WQXO 435, WAP 135, DEA 74, OUD 19, PTO 14, QMF 7, YUI 3, GBJ 2.

NEBRASKA—SCM, Scott E. Davison, W0ED—Nebraska was well represented at the Midwest Division Convention in Des Moines, and the Des Moines amateurs did a bang-up job of entertaining. YWK is sporting a Class A ticket and can be found on 3.85 Mc. with 100 watts. All nets are getting back into the swing of things. If you are not a member, better join up with one. AIN reports he has received orders to report for active duty with the USMC. Thanks for the pictures, CBH. CMO reports DX good on 14 Mc. AY again tops 'em all with a traffic total of 1302. FMW increased power to 150 watts. YSK reports remodeling the shack and operating mobile with a BC-454 ahead of car radio. VQR has a new A ticket operating mobile. Every licensed amateur in Nebraska should belong to the Emergency Corps. Get in touch with JED, our SEC now! UVI is putting up a tower for 28-Mc. beam. JDJ is building new final running 150 watts. BTE, BUW, CEM, and CEO are all new calls in Omaha. BTE is 13 years of age! AGS has an 807 on single sideband. KJP has a new antenna up. EHF really gets the r.f. into his antenna—so much in fact that the boom on his beam caught fire! BBX's fourth harmonic showed up on his 'scope—a boy, weighing 8½ lbs. QHG reports that both rig and work are keeping him off the air. The UVUs have a second harmonic at their house. KQX gets out FB with his mobile unit. Have you tried 144 Mc. yet? Traffic: W4AY 1302, SAI 145, CBH 119, FAM 102, KON 67, JDJ 54, RYG 54, FMW 43, LJO 38, TIP 29, IXL 26, AIN 13, GMZ 12, YSK 11, YDE 10, VQR 9, YWK 5.

NEW ENGLAND DIVISION

CONNECTICUT—SCM, Walter L. Glover, W1VB—The Connecticut QSO Party held Oct. 28th and 29th was a huge success with many stations in all parts of the section participating. The Connecticut Wireless Assn. is to be congratulated on sponsoring this worthwhile activity. No scores are available at this writing. The Simulated Emergency Test held in the early part of October kept the traffic gang in Connecticut busy handling the traffic to Headquarters, resulting in a large increase in traffic scores for the month. SJ is on the air again after a siege in the hospital. HYF enjoyed a two-week trip to Florida. BVB has a 28-Mc. mobile rig working. DJV reports working 2PWP on 50 Mc. with 5 watts. AOS has been laid up for several weeks but worked the rig from his bed. OBS JDJ transmits regularly daily at 10 p.m. on 3670 kc. and on 7050 kc. immediately after. HUM reports very little activity because of plenty of traveling. RAY has moved from Bethel to Newtown. NBP is new OPS. CARA participated in the S.E.T. using two mobiles and several fixed stations. News seems to be at a low ebb this month. How about sending in the dope, fellows? Traffic: (Oct.) WINJM 944, AW 567, LVQ 538, BDI 516, RWS 352, ICP 273, LV 234, VB 232, DIT 166, CTI 163, ORP 133, DJV 109, IJT 63, KYQ 58, ADW 50, BVB 48, GVK 34, KV 21, OJR 11, HUM 10, SJ 4. (Sept.) WICT 37.

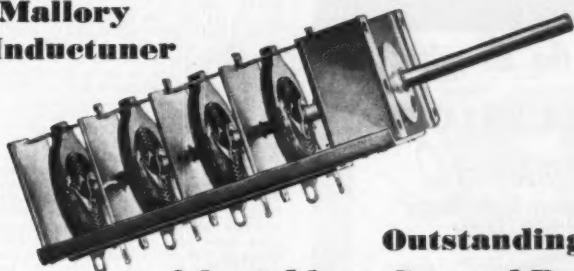
MAINE—SCM, Manley W. Haskell, W1VV—Seagull Net, 3961 kc. at 1715, Mon. through Fri., PAM PTL as NCS. Pine Tree Net, now on 3596 kc. at 1900, new schedule as follows: Mon., NCS QUA; Tues., NCS EFR; Wed., NCS SFZ; Thurs., NCS ROM; Fri., NCS HYH. Contact stations to other nets are RQR, EFR, LKP, NGV, and NXX. NGV tied with 4FF for third place in October LO-Nite honors and also made BPL the hard way with 557 points. QUA was supervisor of both the PTN and AEC nets during the S.E.T. tests and HYH did good work in Oxford at the same time. New PTN members are SSX, LDC, and BKU. New ORS who has moved to Old Town. SRQ is the first Maine woman licensee to make the coveted 25-w.p.m. certificate on c.w. She has handled 740 contacts since March. EYM, JRS, and EFR are new Class A amateurs. Traffic: Portland Amateur Wireless Assn. held a baked bean supper on November 10th at Duck Pond Grange Hall. There were prizes for OMs, OWs, and XYLs. ITU took over as EC for the Portland Area during the S.E.T. and did a swell job as did most of the ECs. The Androscoggin Amateur Wireless Assn. now is in new quarters and will have a station on the air. Officers are SEJ, pres.; LDC, vice-pres.; SZA, secy.; LBN, treas.; LYF, SCM, and CFX, directors. Traffic: WINGV 557, QUA 233, LKP 203, LBJ 152, HYH 67, IGW 51, EFR 47, LRG 45, RPT 40, VV 39, QQY 30, SFZ 29, SUK/SZM 26, SRQ 23, KEZ 16, ROM 16, JTH 12, PTL 12, BTY 11, IXC 10, KDE 10, PYY 7, AMR 6, FXA 6, AWW 3.

EASTERN MASSACHUSETTS—SCM, Frank L. Baker, Jr., W1ALP—New ECs: MAN, KLC, PKW, GJZ, CQN, and FTB. JLW is new OPS. MNK, HLM, DHX,

(Continued on page 60)

MALLORY HAM BULLETIN

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RP, GOU, GDY, MEG, PYM, AQE, QHC, and AAR have renewed appointments. New officers of Norfolk County Radio Assn. are CQN, pres.; NOV, vice-pres.; AYI, treas.; ORY, secy. Boston College Radio Club, PR, commenced its 31st year of activity. Officers are 2QVH, pres.; SSZ, vice-pres.; TBR, secy.; John Donohoe, treas. The Club has 100 watts on 28 and 7 Mc. Martha's Vineyard Amateur Radio Club officers are SGL, pres.; MEQ, vice-pres.; MM, publicity agent; OQT, secy.-treas. TCG is on 28 Mc. Sorry to have to announce the death of REA, of Taunton. KLO, QWM, LSR, JXZ, QPY, TAA, KTU, JOL, DFE, and OLA are on 144 Mc. On 3.85 Mc.: RYB, DWO, KKK, PIG, ROQ, HMB, QQT, KWH, HYG, MHC, and IIM. On 28 Mc.: SNW, QYT, SVU, KBN, JWC, KWD, CF, and PIG. FVD has the rig on 1.8 Mc. CSN is on 3.5-Mc. e.w. AEH is on 7 Mc. PST has rig on 14 Mc. LQO has DX certificate. The T-9 Radio Club met at KON's/ISX's QTH. The Brockton Radio Club had a demonstration on "Impedance Matching Transmitter to Antenna." The South Shore Club meeting had movies and an FCC night with SRO and QVC. The Eastern Mass. Club held a meeting at WBZ-TV. SPB writes that the radio club at Boston Latin School has the call TEM and is on 7 Mc. at noon. The Quannapowitt Radio Assn. held a forum on "Mobile and Portable Operation" with JEL, PSF, and MDH. JCK is new RM for 3.5-Mc. e.w. BGH is active on 3.85 Mc. MAN says that the hams in Marblehead met to discuss emergency work. OBN is going after more code speed. PST had a Brookline Emergency Corps on with 10 members during the Simulated Emergency Test. JLW is on 14 and 28 Mc. LAO has DDI, ASN, JTJ, and MGP lined up for emergency work. LAO got Nevada for WAS, MCR, BUG, QHC, PXH, and QOI helped out in "Mock Disaster" in Boston. They had rigs on 144 and 3.85 Mc. The Brookline Net had two cars on 28 Mc. EMG has a mobile rig in the car. ZR lost her antenna pole in a gale. MRQ reports a very successful emergency test. JYJ, Brookline, put up new antenna. 7HUV, ex-1HUV, of 2726 La Cienega Drive, Tucson, Ariz., sends his 73 to all. HOM, mobile-aircraft, gets on 144 Mc. IIM's XYL, SCS, is editor of *Harmonics*, organ of the YLRL. OPI has a 450-watt rig. The Quannapowitt Radio Assn. had a talk on "Grip Dipper" by HOH and NYU. RGY is on 3.5- and 28-Mc. e.w. DHX is on 144 and 3.85 Mc. EXT is on 14 and 3.5-Mc. e.w. RP has HRO-5 and is on 28 Mc. BLR has rig in the car on 3.85, 14, and 28 Mc. ICO has a 1½-kw. power rig. PIW and LMU have 807s on 28 Mc. PX visited OMU. Newton Emergency Group, NPA, got through to 3PZA and Hartford on the simulated drill. NUO has her Class A license now. HX has new 45-ft. tower at his new QTH in Melrose. FH has new 65-ft. steel tower at his new QTH in Boston with beam on top for 14 Mc. ALP put his 7cwp antenna up higher for 3.5 and 7 Mc. MUD is active on 144 Mc. RD, in Saugus, has a good signal. Attention Wakefield, Mass. Amateurs: G3ESP, W. Farrar, hon. secy.; W. & D.A.R.S. (Holmcroft, Durkar, Wakefield, Eng.) would like to hear from any Wakefield amateur or radio club with a view to Wakefield-to-Wakefield interchange. QUE has been hospitalized. Friends suggest he will very much appreciate any letters and cards from the gang. Send your best to Roy. QUE, 121 State St., New Bedford. Traffic: (Oct.) WIEMG 185, LM 165, TY 131, SS 130, AQE 96, DMS 74, JCK 67, QJB 52, ZR 52, PU 34, MRQ 33, JYJ 30, BDU 19, PYM 18, NWL 9, JLW 8, WU 2. (Sept.) WIJCK 73, MEG 2.

WESTERN MASSACHUSETTS — SCM, Victor W. Paonoff, WIEOB — SEC: JYH, RM: BVR. Net frequency, 3725 kc., Mon. through Fri. at 7 P.M. Slow Speed Net Mon. and Fri. at 6:30 P.M. Many thanks to my friends and supporters in the election. I solicit your cooperation for such projects as may be undertaken in the future. I will do my best to fulfill the responsibilities of the office. This must be club election month. New officers in the various clubs are as follows: Pittsfield Radio Club, LUD, pres.; AZW, vice-pres.; RZZ, secy.; PYR, treas. Hampden County Radio Club, MNG, pres.; RWV, vice-pres.; PHU, secy.; OBG, treas. Quinebaug Valley R.C., EFC, pres.; QFF, vice-pres.; LLT, secy.; HFO, treas. QV emergency net meets Mon. at 8:30 P.M. on 3680 kc. New hams are TDO in Holyoke and TDS in Pittsfield. The Pittsfield R.C. enjoyed a Halloween party complete with cider. 880 (YL) moved to Okinawa. SIT now is located in Newton Upper Falls. RHU is forsaking radio for target shooting. Congrats to BVR, who was reelected as Director of the New England Division. TVI is taking its toll in some sections. It can be licked, fellows. Don't hide it — cure it. HOD now has 3.85-Mc. mobile 'phone. Western Massachusetts emergency 'phone net meets at 9:00 P.M. every Thursday on 29.4 Mc., with NY as Net Control. CJK has 118 countries confirmed on 'phone. JYH is pleased with new blocked grid keying system Goodman style. RZG is getting a big kick out of his new HRO-7 Traffic: WIEOB 614, BVR 103, RHU 78, RZG 66, AZW 39, MOK 5, EDV 3.

NEW HAMPSHIRE — SCM, Norman A. Chapman, WIJNC — SEC: KYG, RM: CRW. Nets: NHN, 3685 kc., 7:00 P.M., Mon. through Fri. NHEN, 3685 kc., 6:30 P.M., Fri. NHEN, 3890 kc., 1:00 P.M. Sun. It is my sad duty to report the death of ADR. Elwyn met his death by electrocution while performing his work as a lineman. We shall all miss the "Old Timer" on the ham bands. It was he who taught me the code and gave me the confidence which

(Continued on page 62)

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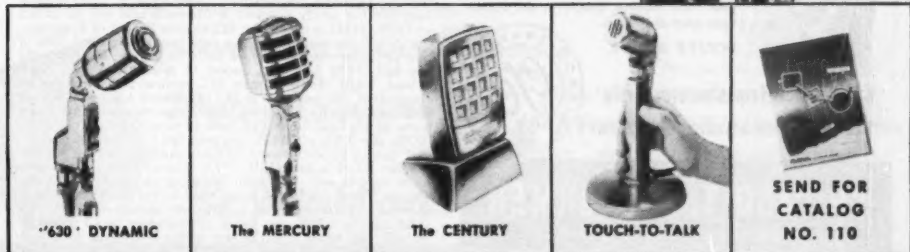


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produced for me that first ham ticket. SIC was called back in the Navy, PVF at the U. of N. H. and ORN, now 4RXP, at George Washington U., Va., are seriously planning a trip to FP8-Land next summer. The Manchester Radio Club and the Nashua Mike and Key Club enjoyed a joint get-together at the Chicken Roost. SKU now is in Tokyo, Japan. TDJ is working 28 Mc. with a Harvey-Wells rig. RMH, CNX, SJS, and OZG have blossomed out with emergency mobile equipment. POK has a 3.5-Mc. emergency rig but is having post-box trouble. BXU, SLE, RMH, TDJ, TCR, LTO, and EIQ are new members of the Concord Brasspounders. Let's hear more from the gang in Berlin, Nashua, and Portsmouth. JNC's new QTH is 98 South St., Concord. Traffic: (Oct.) W1CRW 309, PFU 60, SAL 53, JNC 13. (Sept.) W1SAL 50, QGU 17.

RHODE ISLAND—SCM, Roy B. Fuller, W1CJH—SEC: MIJ, RM: BTV, PAM: BFB. Rhode Island Net (RIN) meets Monday through Friday at 1900 on 3540 kc. SEC MIJ reports good results in the Simulated Emergency Tests. The following nets were active during the period: Providence 28 and 144 Mc., Wis INM, MNC/p.m., SGA/p.m., NBU/p.m., RAM/p.m.; Cranston 28 and 144 Mc., RUS, LZV, SKC, AFO, RVO/p.m., BTV, QLD; Newport 3.85 and 28 Mc., SUP, JFF, OYM/1, 291, sec.; OUR, tress.; BBN; East Greenwich 28 Mc., SKT, BFB, CJH, RVQ, SBF/p.m.; Kingston, PXI/p.m.; Westerly 28 Mc., KRQ, and many supporting operators at the NCS. BTV handled all out-of-State traffic on 3.5 Mc. while receiving it on 144 Mc. TN and SGA are Rhode Island members of the New England Emergency Net on 3.85-Mc. 'phone. Newport County Radio Club elected the following for the ensuing year: SUP, pres.; JBB, vice-pres.; BVL, sec.; OUR, tress.; JFF, theory; BBN, traffic. NAARO's Emergency Net has resumed its regular drill Mondays at 2000 on 29,080 kc. Traffic: W1BTV 85.

NORTHWESTERN DIVISION

IDAHO—SCM, Alan K. Ross, W7IWU—Hayden Lake: FIS, now ORS with Gem Net, keeps daily schedules with EH2, Coeur D'Alene. Firth: BAA, another Gem-Netter made a trip to North Idaho and had an FB ball session with FIS. Moscow: MVA, now with the U. S. Foreign Service, is in Meshed, Iran, temporarily, strictly SWL. He says EQ78AM is genuine as he has "shared his bottle and pounded his brass." Hugh wants to hear from his friends. Write him: Hugh S. Pettis, U. S. Embassy, Teheran, APO 205, c/o Postmaster, New York, N. Y. Another "DX" letter comes from LQN (Filer). He writes from the Philippines, I think. (Not able to confirm where DUL-Land is, but wherever it is, he says it's QRT.) Boise: ACD was heard mobbing around town the other evening on 28 Mc. IWU has a new car. "To mobile or not to mobile" is the question at the present. Traffic: W7NH 74, EMT 47, FIS 23, IWU 19.

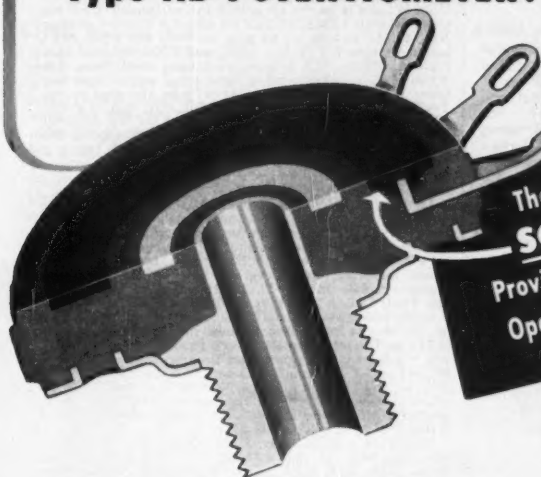
MONTANA—SCM, Edward G. Brown, W7KGJ—KGF, Net Control Station, Montana 'phone net, reports that because of heavy QRM the net will move to 3910 kc. The SMARA meeting was held at IWW's shack Nov. 14th. CVQ, MSN Net Control Station, has been very successful with his deer hunting. Zoo bagged a prize-winning buck. LIT, stationed at Hawaii, would like home state contacts. Jack will be around 14,100 kc. He did not say what call to listen for, but he will be on Saturdays and Sundays or when the Navy gives him a day off. Mayor Earl Mead, LCM, has been busy collecting pledges for funds to purchase a new receiver for LOD. Both Earl and Gene are shut-ins and are very active on the bands. KUH has rebuilt final, now has p.p. pair 807s and is very pleased with new rig. Those interested in some good buys, contact JSW; he has quite a little equipment for immediate disposal. BGG visited the Butte gang for a few days. Al now resides in Pendleton, Ore. CT has new vertical. KJX and LPL are active on Jim Bridger Net, 28 Mc. LUE soon will be on with Bendix TA12. ONT is a new active station in Livingston. Traffic: W7KGJ 113, CPY 21, KGF 15, COH 11, FGB 10.

OREGON—SCM, J. E. Roden, W7MQ—BSY is new EC for the Oakridge Area and is doing a lot of fine planning on the AEC program for this previously not-covered area. OSD is a new ham in Hermiston and will be found on 3.5-Mc. c.w. DIS reports that TVER assisted County Sheriff's Office on Halloween by using mobile. LRG reports that OVN is newly licensed in Medford and will be found on OSN. MMI is attending Milwaukee School of Engineering. NXV, the son of WB, is a new ham in Medford. ESJ is new OO, observing mostly on OSN frequency. MYI reports the call OVM has been issued to Klamath Union High School. NQB, Forest Grove EC, reports that Area really cooperated 100 per cent in the Simulated Emergency Test with mobiles and portables. BDN reports that after some work on his final he will be back in circulation on the nets. NOB, the XYL of MEZ, has received her Class A license. JOP is on 3.85-Mc. 'phone. MEZ is working on his 3.85-Mc. mobile. ADH is new OPS. OHX is new ORS. GXO wants more reports and data from the gang on the OEN for the Oregon Netter. LXR will move back to Portland in the near future. LYN is planning a 100-watt mobile on 3.85 Mc. HAZ reports NYW, the Baker Club station, is all ready to go with 500 watts. OEZ is new in the Pendleton Area and works 7-Mc. c.w. Traffic: W7HDN 136, MQ 112, EJF 107. (Continued on page 64)

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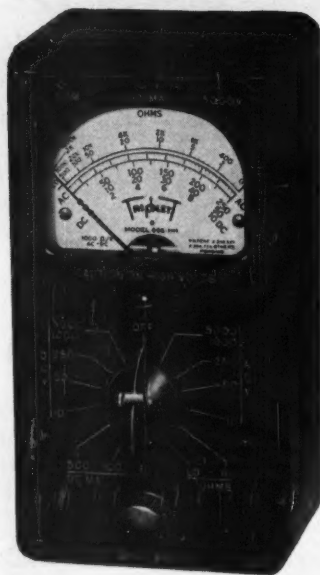
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BSY 93, ESJ 92, JRJ 91, OHX 80, IIV 71, GNJ 57, GXO 56, AJN 53, EBQ 53, GWE 53, FY 24, HAZ 21, II 20, GUR 12, LJJ 12, NOJ 9, OVO 9, DZT 6, KTG 5, LT 5, PL 5.

WASHINGTON — SCM, Laurence Sebring, W7CZY — SEC: KAA, RM: JJK, BX, new OPS at Richland, reports that the Tri-City Emergency Corps has the use of seven gas-driven generators, 5 to 7 kw., to power home stations in the case of an emergency. EVW schedules JLR/KL7. ETO has been too busy deer hunting and DX hunting to operate 3.5 Mc. very much. DGN had a hand in setting up new radio station for Boeings. LTK has an active AEC group in Whitman County. Conditions are bad at EQN, with poor signals and lots of noise. KCU has daily schedule with JZR. LVB lost a couple of antennas in the big wind. NWP moved to Seattle and now is working at Boeings. KWC spends a lot of time on the road and has a fine mobile. BG works into the Tacoma emergency net. APS handles traffic when he can get on the air. OGP is using controlled carrier with 250 watts. OIH has a new four-element 28-Mc. beam. JJK handles traffic on RN7 and WSN. LFA is going to the U. of W. and is on the air with a kw. at Bothell. LEV has schedule with 4OWS/KG6. EYS added W7CF for county No. 141. ZU puts in his air time on WSN and RN7. MVL has a rhombic for 28 Mc. DDQ and OXB received their Class A tickets. FIX is busy publishing PAN News. The Walla Walla gang is coming right along on the new club house and hopes to be meeting in it in the near future. Traffic: (Oct.) W7CZY 946, IOQ 731, JJK 455, BX 392, FIX 176, FRU 104, LEV 104, LFA 94, KWI 79, KCU 10, LVB 34, DGN 27, ETO 14, APS 12, EVW 12, EQN 4, BG 1, NWP 1. (Sept.) W7LEC 263, HMQ 229, OEB 141.

PACIFIC DIVISION

HAWAII — SCM, Dr. Robert Katsuki, KH6HJ — The HARC sponsored a social at Queen's Surf in lieu of a hamfest and the attendance was good with a swell time had by all. ADY has been dividing time between rag-chewing, MARS, and handling traffic for lonely wives whose husbands are on various Pacific Isles. Ted also operates mobile on 28.8 Mc. at 1900 HST Tuesdays. RX (St. Louis College) is active on 7 Mc. at least three times a week, schedules VM on Maui Sunday mornings, and is on 28 Mc. at least once a week running schedule with W8VPA. The school club has been reorganized under AEC, who conducts code classes three times a week. ADK has a BC-441 on 1.9 Mc. running 35 watts 'phone, and a BC-610 on 7, 14, and 28 Mc. Bill also is NCS on Oahu No. 2 MARS, which meets every Friday. He reports 160-meter activity limited to three other stations, AAY, OO, and UZ. Traffic: KH6ADY 34, RX 17, ADK 13.

NEVADA — SCM, Carroll W. Short, Jr., W7BVZ — SEC: JU, ECs: HJ, KTH, MBQ, JVW, VO, TJY, ZT, and KOA. RM: PST, OPS: JUO, VO is new EC for Lyon County. JUO has new VFO for 28 Mc. HJ, Boulder City EC, says the eleven hams in town are all AEC members and took part in the S.E.T. JU operates 160, 80, 40, and 20 meters. He's the new prexy of the Southern Nevada Club, with KIO and BVZ, vice-pres.; LGS, treas.; BJY and LUV, secy. Ex-JPW now is 4RNB, LBE received Nr. 4 certificate and MWF Nr. 5 for working 25 Nevada stations. KGR lost all his radio equipment in a Virginia City fire. MMK is on 7 Mc. with 7 watts. ZT is on 3.85-Mc. 'phone. 6NY/7 is handling considerable traffic on 3.85-Mc. 'phone. JOS has mobile on 3.85 Mc. Meet your SCM mornings on 7225 kc. 6CIS, Pacific Division Director, visited the Southern Nevada Amateur Radio Club Oct. 20th and spoke on the importance of the AEC and also on TVI. Traffic: W7JU 73, BVZ 9, HJ 3.

SANTA CLARA VALLEY — SCM, Roy I. Couzin, W6LZL — SEC: UTV, ECs: NOE, QIE, FTG, RM: CIS, OO: HC. Emergency work is being carried on throughout the section with very good results and with a great deal of interest. Local Civilian Defense groups are inviting the amateurs in their areas to Defense meetings and coordinating their efforts with city and county plans. All ECs are urged to attend these meetings as often as possible to make their own planning easier. Local newspapers have given the ham efforts quite a play, especially with their tie-in with emergency efforts. ZDB has been looking for an all-band antenna but with no luck. PDX is having amazing results on 3.85 Mc. with a box kite antenna. FWH and JSF are in the services. LXA is on the road to recovery but will have to take it easy for some time. HC is keeping busy on RN6 and also is ORS now. QIE took portable rig out with the Boy Scouts and built up traffic total. AVJ and LZL received endorsements for OPS appointments. VWF received endorsement for OBS appointment. NW slacked off on traffic this month as outside work took its toll. Traffic: (Oct.) W6BPT 406, QIE 268, HC 205, CIS 76, NW 68. (Sept.) W6NW 832.

EAST BAY — SCM, Horace R. Greer, W6TI — Asst. SCM, Charles P. Henry, 6EJA. SEC: OBJ, ECs: AKB, EHS, NNS, IT, IDY, QDE, LMZ, OJW, 9IVN/6 now is 6JVE. Oct. 5th saw fun night at the Oakland Radio Club. The get-together was dedicated to the members and their families. RRH was appointed secretary of the Mission Trail Net to finish out the term of JSB. At the October meeting

(Continued on page 66)

Eimac
TUBES

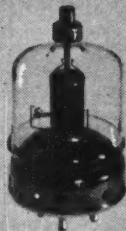
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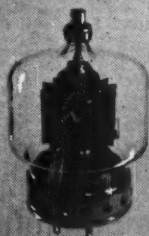
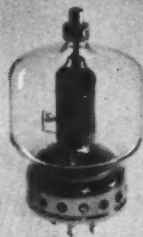


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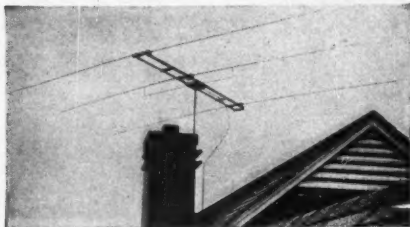
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of the Mt. Diablo Radio Club, John Reinarts gave an FB talk on TVI elimination. JZ goes to town again on traffic report. DTW is not far behind. YDI has some TVI problems. OJW is working 28- and 14-Mc. fixed 'phone. QXN is QRL traffic. ITH still is experimenting with radioteletype. WKU has moved back to the great Midwest and says, "Guess my DX days are over now, at least in comparison to California." CFQ has a new jr. operator. TLC is dazzling the peasants with a brand-new Cadillac these days. BPC has been active lately on 3.85 Mc. testing emergency rig with battery power. BGJ and BUC also have emergency mobile. VHE and K6VHE have been QRL on both Naval Reserve channels and ham bands with emergency traffic from the storm and flood area. YTT now lives in Vallejo. HDD reports that he has helped several fellows cool down their 829 finals but can't make his own behave. FB is busy with Navy work. DYP now is using his new tower. Yes, his beam is up at last and the 14-Mc. array seems to be working out. FB, NIG now is living in Vallejo. Don't forget the ARRL National Convention in Seattle the latter part of July, 1961. Make your plans now for this gala event. The SARO gets together signing the call AEX Wednesday nights on 3785-ke, c.w., Monday nights on 29.6-Mc. f.m., and Sunday mornings on 3870-ke. 'phone. ZKY has new jr. operator. IKQ has been too busy for radio. MEK, GIZ, and UZX are moving into new homes. CTL seems to be a busy man these days and he sure can play a wicked game of Canasta. KEK and JK can be heard on the bands from time to time. WP has not been heard on the air since moving to Castro Valley a year ago. SQ has not been heard from for sometime. MHB is spending his spare time digging telephone pole holes for new antenna farm. QLH is QRL KGO-TV broadcast set-up. Your SCM wishes to take this time to wish all a Most Prosperous New Year. Traffic: W6JZ 899, DTW 682, QXN 174, YDI 62, RRH 38, JVE 2, TI 2.

SAN FRANCISCO — SCM, R. F. Czekowita, W6ATO — Phone: JU 7-5561. SEC: 6NL. Phone: PL 6-6457. The special Simulated Emergency Test planned and performed jointly by CXO, OT, and BHY was a great success. A total of 723 separate and distinct sent and received messages were handled, while the gross total of messages including service messages between the three stations, also relays and re-transmissions to other stations, was 2,227. San Francisco Area: EC: BYS. SWP again makes BPL. Pat's 144-Mc. beam came down in the big wind. M/Sgt. HJP has completed 3½ years as instructor of ROTC at U. of Minn. and is now assigned as Wing Comm. Inspector at Selfridge Air Force Base. JCG reports in with traffic for the first time, as does GCW and KKH. CTH worked a ZS with his 28-Mc. mobile. GGC now has a Collins 32V-2 and 75A-2. The Gyppo Net on 160 meters, originated by FEW, now deceased, has about 35 members, of whom those in this section are EXP, RQL, MXL, IQC, DIE, FDI, OUE, LTV, BUC, QNH, GMP, QH, TIJ, K6IR, W6GGC, and HWU. Net Control. RBQ was honored at a dinner given by the Oakland Radio Club, at which a gold medal was presented to him as Most Distinguished Amateur. The San Francisco Radio Club meets the 4th Friday at 1041 Taraval St. The High Frequency and Amateur Mobile Society meet the 2nd Friday at the local Red Cross Bldg., 1625 Van Ness. Marin Area: EC: KNZ, KNZ, YBT, and FYJ used their 3.85-Mc. mobiles in a crash-by-crash report while located at strategic points around the 4-mile Small Stock Car Road Race at Pebble Beach. NOG was Net Control. BCM, LUM, and TIJ are on 28-Mc. 'phone. DNY and NLQ are on all the c.w. bands. DNY with new HK27s and NLQ with 200 watts to 808s. IZR has a 5-watt 3.5-Mc. c.w. rig. MRZ is building a mobile converter and 815 transmitter. JZY, DXA's nephew, has received his tickets at 14 years of age. The Marin R.A.C. meets the second Friday in the Engineering Lecture Room, Marin College, Kentfield. Sonoma Area: The Sonoma County R.A.C. meets the first Wednesday in the Tap Room of the Grace Bros. Brewery on Second St. west of the Freeway in Santa Rosa. The emergency group has been active in both city and county emergency tests in the area. KIW is in charge of the mobile unit. Eureka Area: EC: SLX. The Eureka Area Emergency Corps went on a disaster footing in the recent storms and floods and handled Western Union, United Press, and personal inquiry traffic, as well as Red Cross messages. The traffic was principally handled by SLX and EQQ, with CWR and FKP standing by. An even more serious emergency occurred a week later, when Crescent City was battered by terrific storms and isolated by severe floods. Our highest commendation goes to WVS, who kept communications with the outside for two days, first through battery-powered 3.85-Mc. 'phone to BJO in Loleta, relayed to BWV in Loleta, and to ATO, NL, and CXO in San Francisco. BME, FBK, BJO, FYY, BWV, CWR, FCR, SLX and a visitor, OEL, plus K6NRU, handled the Red Cross emergency drill. The Humboldt R.A.C. meets the 2nd and 4th Fridays in the YMCA rooms, rear of Munster Auditorium, entrance on "E" St., Eureka. Grosse Area: Sam and Clem are gone from KG6FAA, after doing an excellent job of traffic handling. W4OWS/KG6 now is active on MARS traffic nets to Okinawa and the Philippines. KG6DI still is very active. Traffic: W6SWP 522, W4OWS/KG6 431, W6HQN 181, KKH 147, JCG 63, ATO 26, GCW 2.

(Continued on page 68)

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SACRAMENTO VALLEY — SCM, Ronald G. Martin, W6ZF — Asst. SCMs: Northern Area, 6YNM; Central Area, 6CKV; Southern Area, 6SUP. SEC: KME. ECs: Met. Sacramento, AUO; Walnut Grove, AYZ; Dunsmuir, JDN; Paradise (Chico Area), HBM; Roseville, GHP. RM: PIV. OBS: AF, BTY. PAM: ZYV. OES: PIV. GHE. OOs: ZYV, YNM, BTY, GDO, YV. OPS: JDN. Nets: Sac. Emergency (city), AUO NCS, Sac. Valley Emergency Net, BTY NCS, Sac. Valley Net (TFC), ZYV NCS, Mother Lode, UNT NCS. Northern Area: JDN holds down spot on MTN nightly. CFU built JDN new operating desk and is also now mobilizing. Mt. Shasta Amateur Radio Club held meeting on 11th and had excellent attendance. Central Area: GERC held big Barbecue on 14th and fifty attended. Everyone had an excellent time and lots to eat! CKV lost his 144-Mc. antenna in a storm, but remains on with 78 mobile. Two new hams, JRT and JRY, join the section. NGG is now at Mather Field. HNL is on all bands now. TSB built a Meissner Signal Shifter. ZFJ says 160 mobile is wonderful! CKV worked ICO mobile in San Mateo on 160. OEX moved to Susanville. AF still hammers out OBS. HBM is on 144 Mc. Southern Area: MYT is on MTN nightly. McClellan Amateur Radio Society meets the third day of each month. During Red Cross Emergency, GHP, KKL, UNT, OXG, ZFD participated with ZFD and OXG working the fixed station. OXG has GF-11 on 160 mobile. KKL handled emergency traffic from WVS. SYN works 10 and 160. WFW is on 10 with 40 watts at Bowman. The Mother Lode Net is in operation again. ZFD lost all antennas in wind storm. IHX has new three-element rotary and 829B on 10. NFH returned from Japan and is back on with BC-457 and 250TH. WC joins the section from Fresno and has 307 on 80. HWP and WC live in Florin at same QTH! HEM moved to Stockton. RFO built small emergency rig with 6L6s. JTF, ex-8AWL from Dayton, Ohio, has 813s on 20. PIV is doing nicely at Good Samaritan Hospital in L. A. Traffic: W6KKL 210, ZF 69, MYT 68, JDN 25, SUP 14, GHP 10.

SAN JOAQUIN VALLEY — SCM, E. Howard Hale, W6FYM — SEC: FYM. ECs: AJE, CQI, FIP, GJO, HIP, HZE. OBS: EXH, OHT, GRO. ORS: HU, GRO. OPS: GRO, IEM. OES: PSQ, UWY. OO: GRO. PGP reports from Visalia that IRV is active in USNR work. IFD is newly arrived in Visalia from HLI-Land and is on 3.5- and 7-Mc. c.w. IFC is manager of Visalia b.c. station. YUB is going to school and working at b.c. station. DIE is inactive because of National Guard activities. PGP is looking for Vermont contact for WAS. ARE checks in on MTN c.w. net and Tulare County Disaster Net, and he is installing new receiver in car for mobile work. GJP has full gallon on 3.5-Mc. c.w. and soon will have it going on 7- and 14-Mc. c.w. HZE and GJP are new CD appointees in Taft, HZE as EC and GJP as ORS. Being unable to find anybody in the section who was willing to accept the appointment of SEC, your SCM has appointed himself to that office to facilitate emergency and disaster work in the section. FIP of Turlock is new EC for Southern Stanislaus and Northern Merced Counties. To complete the emergency program for the section ECs are needed for the following areas: Bakersfield, Fresno County, Madera County, Visalia, Tulare, and/or Tulare County. The 8.J.V. section c.w. net is not yet functioning. However, your SCM still has hopes that activity will be under way before 1951. The proposed schedule is Monday through Friday on 3745 kc, 7 p.m. Don't forget to send those reports to me, gang. CU next month. Traffic: W6ARE 2.

ROANOKE DIVISION

NORTH CAROLINA — SCM, Herman P. Jolite, N4DCQ — Of prime interest this month was the ham coverage of the marriage of 4KYI and 3LID on Oct. 29th. CXI gave the bride away and GDB tied a tight knot. AKC is working much DX via long path on 7 Mc. IMH is a member of the Rebel Net on 3635 kc. and is a new OPS. OBD has new 72-footer with a four-element beam on top on 28 Mc. KUV has a super-duper receiver. FT has a fine 80-foot pole for his beam. EDA now is ORS. LWU is OPS and OBS. CQ and DLX are tearing up the 50- and 144-Mc. bands. DGU was elected Net Control Station for the Tarheel Net. He has been appointed as PAM. ZG is SEC for North Carolina. Anyone desiring information on any phase of emergency work should contact Roy in Winston-Salem. He has all the dope available and will make EC appointments. Roy plans to hold a State-wide meeting soon. D5Y spends most of his time working the YEs by both the long and short paths. NOV is back in circulation after a serious illness. ED, VB, and ANU are talking to each other on 28-Mc. ground wave, a matter of 125 miles. HBQ is building something special in an 813 transmitter. DMP and GXT returned to active service with the Navy. AHF is going to the hospital for a serious operation. 73 for a speedy recovery. Lee, AAU also was taken to the hospital but will be back with us soon. IFR and DCQ with their XYLs spent an FB week end in Richmond at the hamfest there. Thanks for the reports, gang. Traffic: W4IMH 167, AKC 45, DCQ 11, IFR 6, NZC 4, LWU 2.

SOUTH CAROLINA — SCM, Wade H. Holland, W4AZT — NLP has new Class B modulator and can be
(Continued on page 70)

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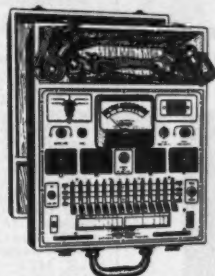


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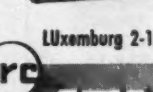
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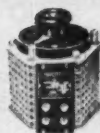
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Reading THERMOMETER



There are thousands of applications for this BRAND NEW (Aircraft Surplus) unit. Complete with 12 ft. of tubing in woven copper sleeve. Black Face, Illuminated Dial. Temperature Range from -40° to +120°F. At a fraction of initial cost.....\$ 4.95

GRID DIP METER

MILLEN 90651

\$55.00



Telephone: LUXemburg 2-1500

HARVEY
RADIO COMPANY INC.

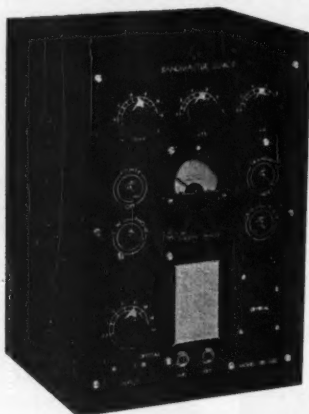
103 West 43rd St., New York 18, N. Y.

NOTE: In view of the rapidly changing price situation in both complete units and components we wish to emphasize that all prices are subject to change without notice, and are Net, F.O.B., N.Y.C.

Nearly 4000 BANDMASTERS

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THE WORLD

The Most Popular and Versatile
Transmitter of the Age



**H-W BANDMASTER XMTRS
have EVERYTHING from
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FOR FIXED or MOBILE OPERATION
YOUR BANDMASTER
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It is PROTECTED by a continuous Technical Bulletin
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Which provides methods of adding new features to
your present BANDMASTER as they are developed.
In this way no BANDMASTER becomes obsolete or
outmoded.

3 BANDMASTER MODELS

JUNIOR	SENIOR	DELUXE
\$87.50	\$111.50	\$137.50

Simple inexpensive accessory kit converts Junior to
Senior. Built-in antenna changeover and push-to-talk
relay now available at small extra cost.

BANDMASTER POWER SUPPLIES

APS-50 for 110 A.C. \$39.50	DPS-50 for 6 or 12 V. 6V—\$87.50 12V—\$54.50	VPS-50 6 V. Vibrator \$29.75
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SEE THEM AT YOUR SUPPLY HOUSE
Send Now for Latest CATALOG

Harvey-Wells Electronics, Inc.
SOUTHBIDGE, MASSACHUSETTS

heard on 3.85 Mc. KEI, KGO, and KWB are now on 3.85
Mc. SBR, in Greenville, now is on 28 Mc. CXO/4 operated
from the York County Fair. ADE is at Nantasket Beach,
Mass., and can be reached at Box 507. The SCM had a
pleasant visit with CE at the Richmond Hamfest. The
Charleston Club elected FXH, pres.; KOD, vice-pres.;
ANK, secy.; and KH6PY/4, treas. New officers of the
Greenville Club are AZT, pres.; EJJ, vice-pres.; PMS,
secy.; OZL, treas.; and ILQ, act. mgr. The Greenville Club
will now meet on the first Monday of each month only. The
South Carolina c.w. net is now operating Monday through
Friday on 3625 kc. at 7:00 p.m. The 4th Regional Net is on
3615 kc. Monday through Friday at 1945 EST. All operators
in the area are invited to report to either or both nets. The
South Carolina 'phone net still operates on 3630 kc. nightly
at 7:30 p.m. Our SEC, ANK, reports that the recent Simu-
lated Emergency Test was the best yet in South Carolina.
Several of the active stations rated write-ups in local papers.
DFC, BIZ, HHO, IZD, OWW, CXE, NRC, MRJ, BWV,
ILQ, FM, AZT, EDQ, and DX are known to have been
active in the Simulated Emergency Test. Traffic: W4ANK
319, AZT 41, EDQ 22.

VIRGINIA—SCM, H. Edgar Lindauer, W4FF—
Among those attending the hamfest held at the Jefferson
Hotel, Richmond, Oct. 21st and 22nd, were DCQ and AZT,
the SCMs of North Carolina and South Carolina, respec-
tively. Speakers were 3NL, 2KH, 4ZA, IQR, FF, NAD,
and LRI. Red Cross simulated test activities in the area
pulled in 1A, FF, KFC, and LRI home stations to assist
3EZA, Red Cross Headquarters station, Washington, in the
heavy traffic loss. Net certificates were issued to GR,
LK, MUP, OGX, NV, LMB, and LNL. New ORS were
LK, PNK, and DO. CVO operated aeronautical mobile en-
route to Collins, Cedar Rapids, keeping schedule with
VFN. RBS is the club call of the Shipyard Radio Club in
Portsmouth. PWF, FTH, and JCC are active on 20-, 14-,
and 3.85-Mc. 'phone, respectively. FWX registered with
AEC and qualified for Class 1 OO. IBB dusted the cobwebs
from his rig in Danville motivated by emergency com-
munications for that locale, aided by JRI, RKM, MWH,
MAV, JRR, LPO, and LPP. KXW, operated at K4WAI,
Raleigh, N. C., will QNI Virginia nets as a link to the South.
The 144-Mc. CRAB Net is snagging DX as far as VE1QY,
Yarmouth, Nova Scotia, using SC522a. RTZ and RGN are
mobile enthusiasts. AJA is lining up the gang for AEC.
KZ5TO and KZ5LH visited RGN and JT. CVO, IYC,
WO, PWX, PHN, ZV, and FJ participated in the Septem-
ber F.M.T. Bristol put NB, IYI, IYU, ORK, and JGS
in the recent S.E.T., all using emergency power. NB used
1-kw. emergency from White Top Mountain contacting
IAW direct on 7 Mc. PWX has new mobile on 3.85 and 28
Mc. NQV is NCS of the Fairfax County Emergency Net.
PVA operates 3953 kc. mobile emergency hook-up with
police department and the Navy at Chincoteague. MWH is
NCS for Fourth Region on Monday nights. Traffic: W4FF
178, KFC 152, FV 138, PWX 57, CVO 41, KYD 40, NUU
31, NBA 30, LK 28, NAD 27, 1A 26, JAQ 26, BCI 23,
MUP 20, PAS 14, NKV 12, IYI 10, PNK 8, ISE 3, KMS3.

WEST VIRGINIA—SCM, Donald B. Morris, W8JM
—Net managers, AUJ for c.w. and MCR for 'phone, report
the nets are going fine. DFC reports into WVN, SRN,
3RN, VN, Tennessee, and Florida Nets. PQQ being
called into Military Service. BWI boosts traffic, reporting
into WVN, 3RN, and Tennessee Nets. CNF is reported
working in Baltimore. VCA has new 28-Mc. beams working.
The MARA reports a swell turnout at its annual freeze-out
in the Cheat Mountains. GBF and PZT worked in the CD
Party from the MARA freeze-out. On the 'phone net MCR
is NCS, with DYP and SKD as assistants. 2BZQ/8 is
operating from Bethany College. AUJ reports amateurs
are needed in Clarksburg to take care of traffic from the
new Veterans Hospital opening about Jan. 1st. FMU, our
SEC, is lining up a good State EC program. TDJ, JKN,
and EP maintain interest in v.h.f. work on 50 and 144 Mc.
WSL, still confined to his home by illness, operates on
28-Mc. 'phone. BWD operates portable throughout West
Virginia while on job assignments. KWL and FMU are
designing a new high-gain v.h.f. antenna. Remember, c.w.
stations are on 3770 kc. and 'phone stations are on 3990
kc. Traffic: W8AUJ 686, BWI 39, DFC 33, MCR 20, DYP
14, BWK 7.

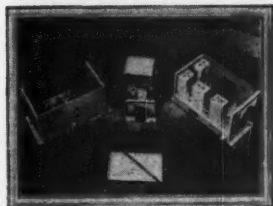
ROCKY MOUNTAIN DIVISION

COLORADO—SCM, M. W. Mitchell, W0IQZ—ZJO
makes BPL again this month with only 13 operating
days! Part of the time that he was not operating was spent
in stalking the elusive (not for him) elk. IC has finished his
new tube keyer and reports elimination of clicks and chirps.
5AOH was a visitor at IQZ. The San Isabel Radio Club at
Pueblo put on an FB dinner at the Hotel Whitman Oct.
28th. Twenty-five members were present, including some
from Colorado Springs. The Arkansas Valley Radio Club
held its regular meeting at Trinidad Oct. 29th. The Trinidad
gang was conspicuous by its absence, only two showed up.
Colorado Springs, Denver, La Junta, and Eads were repre-
sented. A new 3.5-Mc. c.w. emergency net is in the process
of formation. LZV reports more members are needed in the
Colorado slow-speed net, regardless of how slow your c.w.
(Continued on page 78)

RADIO SHACK

presents radio's great new 1951 name:

ELDICO



NEW 2-METER ELDICO XMTR/RCVR Equipment

Commercial VHF superhet for mobile, fixed, defence, CAP. 10 tube 2-meter AM 144-150 mc receiver. Xtal-controlled 144-150 mc 7-tube xmtr. Each in metal $5\frac{1}{2} \times 9\frac{1}{2} \times 5\frac{1}{2}$ " metal cabinets. Jones plugs, coax connectors. All standard parts and tubes. In kit or wired form, complete except for power supply (any supply providing 300V at 200 ma. Write for full details).

2M Rcvr (kit)	\$59.95*
2M Rcvr (wired)	\$4.95*
2M Xmtr (kit)	\$49.95
2M Xmtr (wired)	\$74.95

*For external local oscillator add \$5.00 to above prices.

ELDICO ANTENNASCOPE

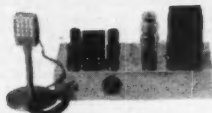
KIT FORM \$24.95

WIRED \$29.95



Described in Sept. CQ, the Antennascope measures radiation resistance and resonant frequency of antenna, impedance of transmission line, SWR on feeder, rcvr input impedance. Use with any grid dip osc. or RF sig. gen. Includes Simpson 0-100 μ a. meter, full instructions. Kit form \$24.95; Wired & tested \$29.95.

FREE — A complete free booklet for de-TVing your rig and a complete list of other Eldico kits

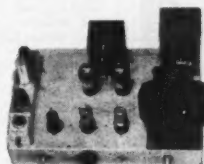


ELDICO LOW POWER MODULATOR KIT

Slick low power modulator or speech amplifier in easy-build kit form. 40 watts of audio (pair of 6L6s). No extras to buy with this famous MD-40 kit, even the E-V 915 xtal mike (leas stand) is included! A terrific value!

MD-40 \$34.95
MODULATOR WITH SUPPLY: Above modulator kit with heavy duty power supply to go on same chassis. Supply includes oversize plate xformer, dual chokes, filters, everything. Order MD-40P.

MD-40P \$44.95



ELDICO Medium Power MODULATOR KIT

The MD-100 kit features 100 watts of audio in a complete AM modulator package that's complete down to the Electro-Voice 915 crystal mike. Tubes: 6SJ7, 6SN7 audio amp./phase inv. driving 6SN7 which drives a pair of 807s. Ideal for 250W CW rig. Price-conscious hams recognize this as a spectacular buy!

MD-100 \$49.95

ELDICO GRID DIP KIT

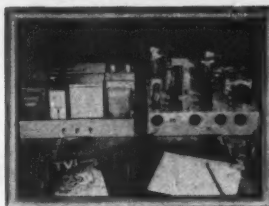
High-sensitivity regeneration circuit. Includes special case, tube, internal power supply, meter, detailed instructions. 3 mc to 250 mc in 6 steps. 105-125 V, 50-60 cycles. Locate resonant circuits for pre-tuning, de-bugging without applying power; use as sig-gen, harmonic-measurer, with Antennascope, etc. Only \$24.50.



ELDICO H-V POWER SUPPLY KITS

Not illustrated. All standard parts, new components, complete less chassis and rectifier tubes.

Order No.	Output	Net
HV-1500	1500VDC 350 ma	\$39.50
HV-2000	2000VDC 500 ma	\$79.50
HV-2000SP	2000VDC 700 ma	\$95.95
HV-2500	2500VDC 500 ma	\$99.95



300W CW, 250W PHONE ELDICO XMTR KIT

Conservatively designed circuit built around components that loaf at rated power. 6V6, 6V6, 6L6, 813, class B 811 modulators. All bands: 80, 40, 20, 15, 11, 10 meters. Complete kits include aluminum chassis, all components, hardware, relay, meter, E-V mike, coils; and 3 power supplies delivering 1500 VDC at 350 ma. 500 VDC at 200 ma, and bias. Unquestionably the BIG kit value on the ham xmtr market today! Model TR-1.

TR-1 Kit \$199.95



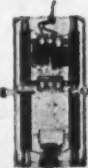
75 WATT ELDICO TRANSMITTER KIT

TR-75 is complete down to the last bolt and simple enough for novices to assemble. CW-men will discover it loafs at 75W. Actually 6L6 oscillator 807 amp.; pi-network output; power supply delivers 600V to the 807. Handsome, shielded cabinet (included) minimizes TVI. Take another look at this low Radio Shack price!

TR-75 \$44.95

ELDICO Brute Force LINE FILTER

Eliminate a cause of TVI — RF feedback thru AC line. See p. 508 ARRL 1949 Handbook, Model TVL-1KW for total max. power from AC supply line of 1 KW — kit \$5.95, wired \$8.95. Model TVL-2.5KW for total max. of 2.5KW 110 or 220 — kit \$11.95, wired \$17.95.



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SHACK Corp.**

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THE AMERICAN RADIO RELAY LEAGUE
West Hartford, Connecticut

may be. The net was originated for the purpose of speeding up those whose code may be a little on the slow side, with lots of practice. DYS is rebuilding slightly. Yours truly was named personal aid to Governor Johnson to act as liaison between the hams and the Civilian Defense organization. Since the election that means 60 more days to act in that capacity. Are YOU one of those hams who can't devote ONE hour weekly to EMERGENCY operation? Traffic: W0ZJO 1009, MOM 68, IC 58, LZV 58, PNK 58, KHQ 21, OWP 5.

UTAH — SCM, Leonard F. Zimmerman, W7SP — The Ogden Radio Club is organizing an emergency net along the lines suggested by JOE, our new SEC. JOE has been working with the Utah Civilian Defense Committee on plans for amateur participation as an auxiliary communication network in case of an emergency. The general idea is to make liberal use of mobile stations and have a few fixed stations not at present active in the traffic nets lined up for outside contacts. The rest of the fellows will be assigned as extra operators for these stations, so if you wish to help either as an extra operator or offer the use of your station, contact your EC, SEC, or SCM. UTM has been appointed RM for Utah and needs help with c.w. traffic. FSP has moved to Virginia and now has the call 4RYE. MQL reports he finally has gotten the bugs out of his 250TH final and is open for business on 3.5-Mc. 'phone. NMK has a new jr. YL operator. Traffic: W7MFQ 77, SP 13, MQL 8.

SOUTHEASTERN DIVISION

ALABAMA — Acting SCM, Percy Sexton, W4HFL — A PRS now has Class A and operates on 3.85 Mc. RYY and RYY, both blind, are doing FB operating on 3.85-Mc. c.w. RLG is active on 7 Mc. from Cottondale. RTM, ex-5DOL of Hattiesburg, now is in Mobile. FHD is on 3.85 Mc. with 40 watts. NGL is on 3.85 and 28 Mc. EI is on the air again. The Mobile Club put on an enjoyable Oyster Fry Oct. 14th. INU is returning to the Air Force. OAO worked first 14-Mc. DX in October. OH2KD, Helsinki, HFL had a nice letter from K6CN, ex-YE, El Toro, Calif. He operates 14-Mc. 'phone from 9 to 10 A.M. CST. K6CN reports that he has heard from ex-4JYB, who is operating from Tokyo with the call JA2LM on 14- and 28-Mc. 'phone. Officers of the Mobile Club are SLJ, pres.; GHZ, vice-pres.; MQL, secy.-treas. QEE is the Club's station call. LCK, OUW, IAX, and RCK were guests at a "Hamburger Fry" given recently by the Pensacola Club. GOL is back on the air from Mobile. FZY is at Keesler AFB. GYD is installing filter to eliminate TVI. HA runs a full gallon on 14 Mc. Taking part in the October S.E.T. were LEN, LCK, FGT, OBC, MEP, BMM, OHK, EWN, OR, OBV, BFM, DAQ, MFY, IBZ, MKF, MEM, ISD, CYC, and MKV. MEP furnished two mobile units for the tests. Traffic: W4LEN 120, KIX 110, CJW 28, OAO 14.

EASTERN FLORIDA — SCM, John W. Hollister, W4FWZ — I believe all will agree with AXX that "hurricanes ain't practical." Someone should devise a better way to get wind and rain. Anyway here are some of the stations that were monitored during the October blows and high waters: COB, AYP, MXW, MTI, IQV, AVQ, JEP, WS, LMG, HWA, HUY, BMR, AOK, NQY, BRB, AYW, KM, Q, IEL, IMJ, PB, CPG, JWC, ARO, LJM, KIO, GZY, NN, CQI, MTU, AXY, MCT, EFC, DGW, GEJ, FJU, OWX, PNV, KJ, FZM, KKF, DZH, PJW, ITV, FWD, JOY, JEF, LTE, 3BHK, 3VNF, 20QI/M4, K4WAR, K5FBB, and 2HVJ. Many others failed to send in reports. How many read the editorial in December QST on our CD prospects? Better read it over again and give it plenty of thought. Deland: Station homecoming provided plenty of traffic for a special set-up by FJI with WS and 20QI/4. Jacksonville: One of our best DX men has been transferred and we will miss LZM. Melbourne: Look for RWE, ex-10JM, ex-5DG, also HQN, when in Virginia. Miami: Nice to have IYT back. Andy now is with ARINC. Punta Gorda: OGI (RM on 3675 kc.) now is Class A. Ed says more members are needed on 3675 kc., especially with the Florida Fair coming up. KJ and RWE are new ORS appointees. OCG's QTH is Winter Garden. Why can't we have more activity in our traffic net on 3675 kc.? I have received many cards from up the line asking about us. Where and when? In between emergencies traffic is the yardstick of our value to the communications field. While Florida used to be out front in c.w. activities we now are way down the line. A few men just can't do the job. What's the trouble, fellows? Drop me a card and get it off your chest. Let's put Florida on top again. Traffic: (Oct.) W4LMT 78, OGI 74, KJ 58, FWZ 17, IYT 17, (Sept.) W4OCG 190.

GEORGIA — SCM, James P. Born, Jr., W4ZD — MNZ visited his daughter in Portugal for a month and now is in California. OPS has a new yacht and recently spent the night on an oyster bed waiting for the tide to come in so he could move. MIP is off the air for repairs and beam building. GMP, now stationed in Charleston, S. C., visited FBH for a week. CFJ has a new YL jr. operator. KPQ has a new rhombic headed northwest. RTN and RTE are new hams in Valdosta. KWC has a new final using p.p. 24Gs. MCM is on 56 Mc. The Kenneshochee Radio Club now is 100 per cent AEC and did a good job during the Simulated Emergency Test. The Atlanta C.W. Net now has twenty-

Continued on page 74



Our 28th Year

LEEDSQUALITY - PRICE
DEPENDABILITY**POWER TRANSFORMERS**

Fully Shielded Upright Mounting Type

Type No.	H. V. Secondary		Rectifier		Fil. Wdgs.		Dimensions			Price
	Volts	DC. M.A.	Volts	Amp.	Volts	Amp.	H.	W.	D.	
P-3147	240-240	50			6.3	2.5	3 1/4	2 1/4	2 1/4	\$2.94
P-3148	260-260	90			6.3	3.5	3 1/4	2 1/4	3 1/4	3.53
P-3149	240-240	40	5	2	6.3 c.t.	2	3 1/4	2 1/4	2 1/4	3.18
P-3150	325-325	40	5	2	6.3 c.t.	2	3 1/4	2 1/4	2 1/4	3.38
P-3154	275-275	50	5	2	6.3	2.6	3 1/4	2 1/4	3 1/4	4.41
P-3160	350-350	50	5	2	6.3 c.t.	2.6	3 1/4	2 1/4	3 1/4	3.82
P-3181	325-325	70	5	3	6.3 c.t.	3.5	3 1/4	3 1/4	3 1/4	4.06
P-3152	350-350	90	5	3	6.3 c.t.	3.5	4 1/4	3 1/4	3 1/4	4.41
P-3153	350-350	110	5	3	6.3 c.t.	4.5	4 1/4	3 1/4	3 1/4	4.94
P-3155	400-400	200	5	3	6.3 c.t.	5	4 1/4	3 1/4	4 1/4	7.79
P-3156	435-435	250	5	3	6.3 c.t.	3	4 1/4	3 1/4	4 1/4	9.41
(80-volt Bias Tap)										
★P-3165	350-350	200	2.5	10	6.3 or 5	7	4 1/4	3 1/4	5	9.54
★P-3166	400-400	300	5	3	6.3	7	5 1/4	4 1/4	5 1/4	16.02
★P-3170	1750	2	2.5	2	6.3	9	3 1/4	2 1/4	2 1/4	5.59
★P-3171	2500	5	2.5	2	6.3 or 2.5	3	3 1/4	3 1/4	3 1/4	7.50

PLATE TRANSFORMERS

For Small Transmitters. DC Voltage Ratings are Approx. Values Obtained at Output of a 2 Section Choke Input Filter Using Mercury Vapor Rectifier Tubes. Pri. is for 115 V. 60 cy.

Type No.	Sec. Rms. Volts	Sec. DC Volts	DC Sec. M.A.	Dimensions			Price
				H.	W.	D.	
P-3157	(660-660) †	(500)	250	4 1/4	3 1/4	4 1/4	\$7.35
P-3158	(550-550)	(400)					
P-3159	(1080-1080)	(1000) †	125	4 1/4	3 1/4	5	9.11
P-3167	(500-500)	(400)	150				
P-3168	(900-900)	(750)	225	4 1/4	3 1/4	5 1/4	8.82
P-3169	(800-800)	(600)					
P-3172	(1450-1450)	(1200)	300	5 1/4	4 1/4	4	21.90
P-3173	(1175-1175)	(1000)					
P-3174	(2100-2100)	(1750)	300	5 1/4	4 1/4	4 1/4	27.49
P-4062	(1800-1800)	(1500)					
P-4063	(2000-2000)	(2500)	300	8 1/4	6 1/4	5 1/4	40.72
P-4064	(2385-2385)	(2000)					

†For dual operation with simultaneous use of both sec. ratings.

†Has 40-volt bias tap.

★Indicates TV Replacement

FILAMENT TRANSFORMERS

For Amplifier, Amateur, Industrial Use. Pri. 115 Volts, 60 Cycles

Type No.	Sec. Volts	Sec. Amp.	Insulation Volts	Dimensions			Price
				H.	W.	D.	
P-2339	2.5 c.t.	5	2500	2	3 1/4	1 1/4	\$2.06
P-2340	2.5 c.t.	10	7500	3	3 1/4	2 1/4	3.09
P-2341	2.5 c.t.	10	10000	2 1/4	3 1/4	2 1/4	3.38
P-2342	5 c.t.	3	2500	2	3 1/4	2 1/4	2.26
P-2343	5 c.t.	6	2500	2 1/4	3 1/4	1 1/4	2.65
P-2344	5 c.t.	12	2500	3 1/4	2 1/4	2 1/4	3.68
P-2345	5 c.t.	20	2500	3 1/4	3 1/4	3	5.88
P-2346	6.3 c.t.	1	2500	1 1/4	2 1/4	1 1/4	1.56
P-2347	6.3 c.t.	2	2500	2	3 1/4	1 1/4	1.91
P-2348	6.3 c.t.	3	2500	2	3 1/4	1 1/4	2.20
P-2349	6.3 c.t.	6	2500	3	3 1/4	2 1/4	2.94
P-2350	6.3 c.t.	10	2500	3 1/4	2 1/4	2 1/4	4.12
P-2351	7.5 c.t.	4	2500	2 1/4	3 1/4	1 1/4	2.65
P-2352	6.3 c.t.	3	2500	3	3 1/4	2 1/4	3.68
P-3041	5 c.t.	3	2500	2 1/4	4	2 1/4	3.68
P-3143	7.5 c.t.	8	2500	3 1/4	2 1/4	3 1/4	4.53
P-3145	10 c.t.	5	2500	3 1/4	2 1/4	3	4.53
P-3146	10 c.t.	10	3000	3 1/4	3 1/4	3 1/4	5.44

CHOKES

SMOOTHING TYPE	Hy	SWINGING TYPE	Hy	MA	Price
C-80	10	C-87	4-16	150	\$3.38
C-81	10	C-88	4-16	200	\$4.24
C-82	10	C-89	4-16	250	\$5.88
C-83	8	C-90	3-14	300	\$6.17

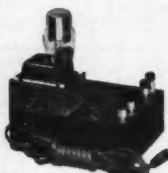
All above 3000 Volts Insulation

If not rated 25% with order balance C.O.D. All prices F.O.B. our warehouse New York. No order under \$2.00. We ship to any part of the globe.

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Cortlandt 7-2612Dept. QS 1
New York City 7

LOOK

POWER SUPPLY SCOOP!



Utility power supply, 350 volts DC @ 50 Ma., 6.3 volts @ 2 Amp., black crackle chassis 6 1/4" x 5" x 2". Has choke and 2-section filter, AC switch and line cord, a wonderful buy, less No. 80 rectifier, only.....

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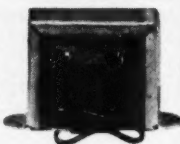
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two members. MTS is Net Control Station. LJB has a new wire recorder. KFL visited Atlanta for several days; he now is stationed at Fort Bragg, N. C. KIP worked 5RCI in Mississippi around midnight Oct. 24th when the 144-Mc. band came up with one of its erratic openings. This contact, and one with 5JTL, were made while KIP was running 400 watts on 'phone to a pair of 4-125As, but when he switched over to 1-kw. input on c.w. 5RCI relayed a reception report from Texas. LBO has a new harmonic — it's a boy! HDC lost his antenna and a fifty-foot pole in the recent winds. New members of the Cracker Net are AQL, GMA, HHU, and PGV. Anyone who feels his station activity warrants appointment as ORS, OFS, OO, or OES is requested to drop a line to your SCM for the necessary information. Traffic: W4HZG 8, ZD 8, KGI 5, IMQ 4, MTS 4.

WEST INDIES — SCM, William Werner KP4DJ — SEC. ES. Net frequencies are 3559 kc., Mon. 8 p.m.; 3925 kc., Wed., 8 p.m. The P.R. Emergency Net, alerted Oct. 30th because of the Nationalist Insurrection, stood by 24 hours a day until Nov. 2nd. HZ and JA took midwatches. ID was at Red Cross Headquarters. HU and QZ are ready for 3.5-Mc. DX. The BARG is striving for 100 per cent ARRL membership. The Metropolitan Radio Amateur Club, organized by San Juan hams Oct. 1st, met the 2nd Fri. and last Sat. of each month. JA, FF, DV, ED, and KJ donated equipment to the Club. Ramey Net is on 29,560 kc., 8:15 p.m., even Tues.; 7050 kc., 8:15 p.m., odd Tues. IT has new 152A, MM and NK have new 8X-71a. ID has new 3.5- and 28-Mc. antennas. W2ZRN is KP4NJ, W6RKC is KP4NN, W2CKI, Liana, is KP4NL. LU and MN are new AEC members in Areibo. GN is on 3.85 Mc. BL is using ART-13. Traffic: (Oct.) KP4DJ 41, ID 22, AZ 5, IT 3, KD 3 UW 2, (Sept.) KP4ID 13.

CANAL ZONE — SCM, Everett R. Kimmel, KZ5AW — A father and son team, BL and RM, were NCS for Atlantic and Pacific Areas, respectively, during the recent S.E.T. PC and WG operated the first KZ5 mobiles during the same session. CG rode the mobiles as official photographer. GT has his mobile installed and the rest of the gang are tacking down unattached PE-10s and chopping holes in the family chariots now that mobile authority is assured. Our DX position and the fact that only 90 minutes driving is required to go from the Atlantic to the Pacific shore opens up many fascinating mobile possibilities. DB made WAC on c.w. WZ is mending after a Stateside operation. BT is building up our 14-Mc. 'phone net and is beset with all the usual initial difficulties. FL is back from his South American trip. AC, BC, MD, FC, WG, and WJ were the operators for the hobby show ham booth. Traffic: KZ5WJ 126, FC 36, FL 10.

SOUTHWESTERN DIVISION

LOS ANGELES — SCM, Virge A. Gentry, Jr., W6VIM — PAM: MYK, RMA: CE, CMN, DDE, F.W, JQB, and LDR. ESR resigned as SEC, and as of this writing no successor has been appointed. Happy New Year from your SCM. IZY operated an MBF from the top of the Santa Monica Hospital during the evening of the National Emergency Test. GTE averaged 8.4 parts per million in the September Frequency Measuring Test, while DFO was second with an average of 9.4. The Santa Monica Mike and Key Club announces officers as follows: EVS, pres., RIU, vice-pres., and treas.; DLL, secy. This Club meets the first and third Thursdays at 8:00 p.m. Interested amateurs are invited to call Arisona 3-4586 for the location of current meetings. CAJ applied for a 35-w.p.m. Code Proficiency certificate. The following handled traffic from the Ventura County Fair: CE, DTW, GYH, and LDR. The operators at the Fair were DTY, IDJ, IGH, KMJ, QIV, and ZKL. ZL and WKO are using voice-operated relays for break-in and report more contacts and less wasted time. HBY is mobile with a TBS-50. ZUX had to move his eight-element 50-Mc. beam to his new location atop the Hollywood Hills. CGQ is running a kilowatt on 29 Mc. and has no TVI. CTS reports no TVI with his 1/2-kw. unshielded rig on 29 Mc. His rig is not grounded but he is using a two-element coaxial-matched antenna. We welcome YLO to the Los Angeles section. DQO and ZWQ are emergency powered. ABN, ELS, and IHK are contacting San Diego regularly on 420 Mc. FEX moved to a mountain top. NAZ has a TV show. KEI was appointed EC in charge of Los Angeles! All amateurs residing in Los Angeles proper are urged to contact KEI on all matters concerning the AEC. ZVV was appointed EC in charge of the Hollywood Area and RNN was appointed EC in charge of public relations. LDR was in that the Southern California Net needs more members in the Los Angeles Area. This net meets at 7:15 and 10:00 p.m. JIU and WXS are additions to the 1.9-Mc. band in the Los Angeles section. EAJ/6 handled traffic at the All-Electric Show at the Pan-Pacific Auditorium. WBO moved to Paso Robles. AFR is working on a separate "Worked All States" certificate for each band, both 'phone and c.w. AGE transmitted Official Bulletin while TDW was in Mexico City. AEE reports that the teleprinter net operates on 146.8 Mc. President Bailey, 2KH, visited MU. VIM and 2KH attended the press conference at the I. R. E. Convention at Long Beach. CUF has a new kw. AM buried the power lines for 500 feet at his ranch station and not 500

(Continued on page 76)

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feet under the ground, as indicated by a previous report in this column. HYS has a new 57-ft. steel tower. The erection of this tower was attended by HYO, SW, WYM, COZ, WXG, IDM, ZGY, JMY, YLM, and GAE. DBY was deferred from active duty in the Navy. DLR has been trying controlled-carrier screen-grid modulation. Your SCM appreciates notice of club meetings. However, these notices should be supplemented by the happenings at the last meeting. The following ECs received honorable mention from the SEC for their outstanding work in the AEC: RIT, KXS, ZVD, DCB, HKV, QNW, and CWS. Traffic: W6CE 3936, LDR 843, GYH 527, DDE 451, EAJ/6 368, ANT 155, JOB 104, HZL 51, QAE 50, FYW 45, BHG 43, QLM 39, APR 30, FMG 29, TDW 27, ABE 20, CMN 14, MU 14, CUF 9, AM 6, COZ 5, HYL 4, DBY 3, DLR 2.

ARIZONA — SCM, Jim Kennedy, W7MID — The following have been appointed ECs: For Phoenix, LUK; for Miami, MOC; for Bisbee, JMQ; for Flagstaff, LNJ; for Prescott, KYM; for Wickenburg, NDJ; for Wilcox, TCQ; for Yuma, ACN; for Tucson, KFS. A new OO in Tucson is NYK. MNH is back in the Navy. SDU has new crystal-controlled converter. MAL and NAP now have their Class A licenses. New calls in Phoenix are OED, OGV, OJB, and OYK, all on 28 Mc. NYN got a nice write-up in the local paper. OLB is doing an FB job of handling the 28-Mc. emergency net on Tuesday evenings. New daughter and son arrivals are announced by NAP and MID, respectively. OIF is heard from Bloody Basin, via his nifty 3.85-Mc. portable rig, reporting good deer hunting. UDI is on 28 Mc. using clapper tube modulation of his 814. KWB is building 813 rig using the same system. LYK did a nice job in recent Frequency Measuring Tests. NYK is building equipment for use in his OO job. OIF and I enjoyed our visit with the Tucson gang to discuss emergency preparedness. I'm hampered in preparation of these reports by lack of news from you, fellows. All appointees agree to send in monthly reports. We want to hear from all of you, appointee or not.

SAN DIEGO — SCM, Ellen White, W6YYM — RM: EIQ, EC: VJQ. Thanks to BAM for a fine job done these past months as Acting SCM. A score of 924 put him in BPL again this month. BAM reports daily traffic schedules with JAZKW going in good shape except for poor conditions on 14 Mc. In regular attendance on SSN are EIQ, BAM, IZQ, FCT, and 7NDS. Your EC reports 18 drills held during the month with a total of 431 check-ins. Quoting from the monthly AEC report, "I have had four meetings this month with the city officials regarding Emergency Communications. By their own volition all seven commercial broadcast stations have placed themselves under our direction in emergency planning as well as in time of an actual emergency." YYN and ELQ were heard working in the CD Contest on 7 Mc. The Soledad Amateur Radio Club rooms are taking shape; the club transmitter is heard on 3.5 Mc. under the call GER. The San Diego Amateur Radio Club is investigating amateur radioteletype as a club project. The Astec Radio Club, of State College, is sporting a new 28-Mc. beam at the club shack on the campus. Approximately one dozen prospective hams are attending code and theory classes, sponsored by the Soledad Club. The Colorado Radio Club plans to have a revised edition of the San Diego County Amateur Directory out shortly after the first of the year and is currently holding practice Field Days in anticipation of Field Day, 1951. YYM/YYN have practically gone mobile; at least they've got a car now! Traffic: W6BAM 924, ELQ 313.

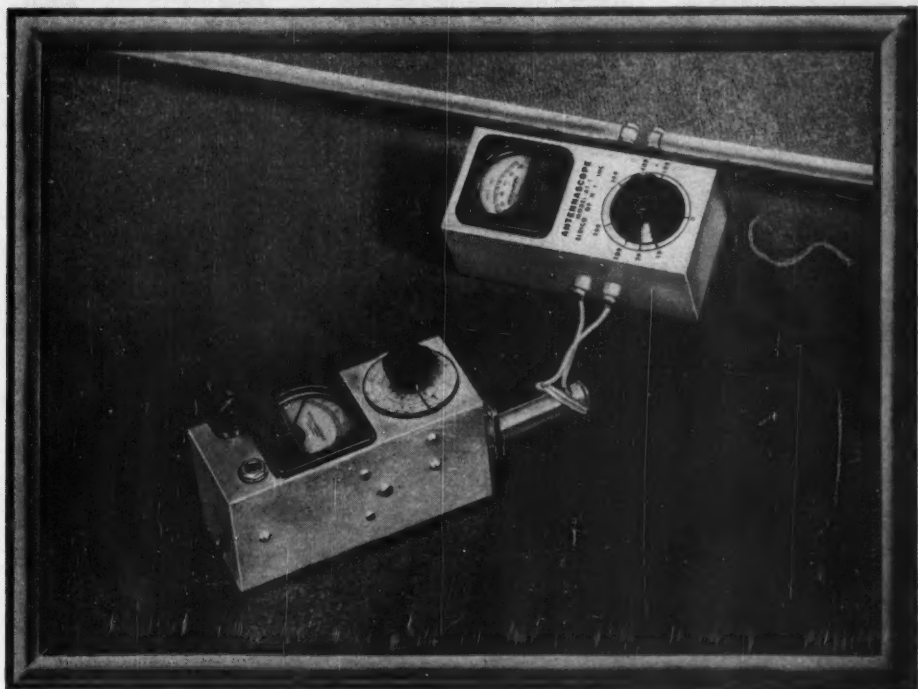
WEST GULF DIVISION

NORTHERN TEXAS — SCM, William A. Green, N5BRK — Asst. SCM, Joseph G. Buch, 5CDU. SEC: AAO, RM: GZU, PAM: ECE. Greetings from the new SCM and thanks to all for the splendid cooperation. To CDU a "Well Done" for his services. All hands please check their membership cards and/or certificates of appointment. Don't get left out of the fun, bring them up to date. Under the guidance of AAO, the AEC organization is off to a good start with the following EC appointments for this month: APW, CTM, EN, FLA, FQK, GUD, MBR, MDL, and OVD. NTEN has jumped off to a lead in the Trophy Competition. ATG has been elected NCS of the NETEN. Taking part in S.E.T. demonstrations were the following clubs: Amarillo, Abilene, Big Spring, Cisco, Fort Worth, Lubbock, and Perryton, with the following stations reported to have taken part: AW, BGT, BKH, CYX, DVB, DCM, EID, GMD, FIR, FRU, GBS, JNB, JND, JQD, KTX, LWZ, LTM, MJD, MSY, MYH, NLC, NUJ, NQD, OFN, OHL, OFD, OME, PCN, PHM, PSE, QWK, QOV, RBA, RBV, RGW, RGD, RKJ, RPR, ROH, RRA, and WB. Auxiliary AEC nets operating on 28 Mc. were organized in Amarillo, Fort Worth, Borger, Lubbock, Pampa, Plainview, and San Angelo. K5TOF, at the Texas-Oklahoma Fair, was well handled leaving a good impression with the public. Taking the reins of the trade organization is GZU with an informal net at 3960 kc. and the NTX under ARK. FNS is new OO. QAP left for the Navy. Traffic: W5GZU 391, BKH 216, QDF 94, ARK 92, GER 48, BFA 20, FIR 17, NU 16, IWQ 12, JOG 12, LEZ 12, ASA 8, LGY 8, RJM 8, NSN 6.

(Continued on page 78)

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CO
FREET



OKLAHOMA—SCM, Frank E. Fisher, W5AHT/AST—SEC; AGM, RM: FOG, PAM: ATJ. In looking forward to another term as your SCM, I wish to express my appreciation of the pleasure of working with such a fine group of amateurs as has been my privilege during the two years past. Let's work together to put Oklahoma among the foremost in amateur activities of real merit. The results of the recent Stimulated Emergency Test is an example of co-ordinated effort and reflects the training and preparation that is the secret of success in any such endeavor. It was a fine job well done, fellows. LUN moved to Dallas; and HFV, EGC, PPL, QNP, OJO, LOC, and MIR are all in military service. GZ8 replaced MIR as EC for Tulsa County. PSR has a new T-35 'phone rig. BSK also has a new rig with p.p. 813s. ATB is in his new home and wants to know how to keep paint on a crooneted pole. PA still is working on his "dream shack". HFY is reported to be building a new 'phone rig with p.p. 24Gs as "filament" modulators. OCARC has resumed meetings at the Biltmore Hotel with BKN as new prexy and EHC as acting treasurer. AGM reports 17 counties now in the organized AEC. AAJ and HXC received EC appointments. SCX is a new ham in Ardmore; he's JP's brother. FME is responsible for increased traffic on OLZ, much of it to Lark through PCQ and MFX. The Enid ARC has new officers: LHZ, prexy; GVS, veep; MFX, secy.; and ROL, asst. secy. Traffic: W5AHT 278, OYP 265, FOG 133, PCQ 128, FOM 97, GPD 95, MRK 82, HXG 39, MEZ 27, ADB 17, EHC 14, ADC 8.

SOUTHERN TEXAS—SCM, Ammon O. Young, W5BDI—MN has 5 a.m. traffic schedule on 7 Mc. ARV is working some DX on 14 Mc. The Temple Amateur Radio Club elected new officers: QGD, pres.; DXD, vice-pres.; RHU, secy.-treas.; and LM, custodian. DXD, JIB, PNP, and QGD are active in STEN. ESL, IPT, PYC, QOT, and RHU are active on 7 Mc. BBZ has transformer troubles. OJD lost his antenna in a windstorm. QOT, PYC, and IPT are active in MARS. Barney Harris, ex-KL7, is awaiting modification. RWQ and SAN are new hams. AMK, LM, PYC, and QGD are waiting for 28 Mc. to open. IRP, RBQ, MAN, QJS, and RMX met in Herman Park for a picnic and organized a 28-Mc. mobile club. No officers have been elected yet but it was decided that the club would get crystals for 29,640 kc. for net operations. NMA now has 130 confirmations on 28-Mc. 'phone. NNY has 500 watts on 14 and 28 Mc., 'phone and c.w. OFM has given up on 28 Mc. and has returned to 14 Mc. LX refuses to give up as he waits for 28 Mc. to open. LXV is back on after moving to a new location. ACL is trying to get enough energy to put up a pole to hold a beam. FI is trying low-noise amplifiers. JWM has bought a house in Odessa and hopes to have his kw. and four-element beam up soon. New hams at Ft. Arthur College are GWT (Ft. Smith, Ark.) and MCZ. LAK/5 is active from the College on 3.5-, 7-, 14-, and 28-Mc. c.w. MZL is on 14-Mc. c.w. FXO has rig on 7- and 14-Mc. c.w. OPJ is on 28-Mc. 'phone. JIF, LKP, and GYM made high scores in the El Paso WAS Contest. PA0PZ is in Ft. Bliss and will be there about six months. Traffic: W5MN 130, NYI 2.

NEW MEXICO—SCM, Lawrence R. Walsh, W5SMA—PAM: BIW. RM: NJR. PAM v.h.f.: FAG. Your SCM, en route to California, visited FAG, JXL, BIW, DBA, and JKO. FPB, secretary of the Sandia Radio Club, reports that at the Oct. 9th meeting Paul Dailey spoke on "Calibrating and Extending the Range of Meters." At the Oct. 23rd meeting Al Fite spoke on "Citizen's Band Radio Equipment." RZJ, ex-700H, can be reached via James Pueblo, N. Mex. PZZ/5 is operating portable on 28 Mc. from Cedro Peak, near Albuquerque. QAU has all-band mobile installation! BIW has a very nice 3.85-Mc. mobile rig in his new Kaiser. FAG has his "second" car devoted to mobile rig. The Los Alamos Radio Club has decided to contact the Boy Scouts and High School for the purpose of starting beginners' code and theory classes. QNQ has a new 840-B receiver and Class A ticket. NSZ's daughter, NQT, has become an XYL. NQU is studying at the Jordan Conservatory of Music at Indianapolis and is on 14-Mc. 'phone and 7-Mc. c.w. The fourth member of the Lusk family has received his ticket with the call RWV. RMJ is active on 7, 14, and 28 Mc. QG is on 28-Mc. 'phone from Carlsbad. NXF has a new three-element 28-Mc. beam rigged above his 14-Mc. beam.

CANADA MARITIME DIVISION

MARITIME—SCM, A. M. Crowell, VE1DQ—MK is back in Cape Breton Island activities. AAR and AAL are on 28-Mc. 'phone. ZM, XYL of GG, runs 125 watts to a pair of 812s and 3L Hammond beam on 14 Mc.; also has 125 watts on 3.5- and 14-Mc. c.w. to a T-55 final. YC rebuilt for 28-Mc. 'phone using 813 final, 300 watts, and plumbrel's delight. DG is active on all bands with BC-223 and TA-12 and NC-57 receiver. YR uses a 19 set on 3.5 and 7 Mc. WE sticks close to 3.5 Mc. with the NC-240D. LU uses a 19 set tied to folded dipole antenna. LO has 75 watts to a pair of 807s final on 7 Mc. and a homemade super receiver. VC, with 100 watts, has a pair of 807s and BC-348 receiver. CH will appear with new Hammond beam for 28 Mc. CN is on

(Continued on page 80)

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3.8-, 14-, and 28-Mc. 'phone with a pair of 812s final running around 250 watts, a plumber's delight beam on 28 Mc., and an HQ-129X receiver. NO, BC, ET, and DQ have TA-12 transmitters. WW has been keeping schedules on 50 Mc. with LY who was on 28 Mc. We hear KS got the new Collins 32-V going FB from the new QTH. On a recent motor trip GH contacted FQ and DQ via the 3.8-Mc. mobile rig. ET has been working a few odd bits of DX on 28-Mc. 'phone during openings. TA finally got up a full-wave antenna on 28 Mc. PT has the granddad of all ham towers for his new 14-Mc. rotary beam. AW is hard at work on his new 14-Mc. rotary. EK has been giving 14-Mc. 'phone a whirl. UC is back on 14 Mc. Traffic: VE1MK 23, FQ 22, DB 9.

ONTARIO DIVISION

ONTARIO—SCM, G. Eric Farquhar, VE3IA—Officers for 1950-51 of the Nottown Amateur Radio Club, Toronto, are AEJ, pres.; AAW, vice-pres.; BVC, secy. BTE held open house to celebrate her birthday. Hubby BPE celebrated at the same time his second term as president of the Hamilton Amateur Radio Club. KM, our SEC, reports swell cooperation of all members of the AEC during the S.E.T. During the Toronto EC test, under the guidance of DHQ, 150 messages were handled. With 52 EC members on its register, 49 took part in the affair. A tip of the hat to this bunch of emergency-minded amateurs. IL, the EC for Toronto, is certainly doing a fine job. At a meeting the week following the S.E.T. the Toronto gang ironed out problems arising from the test. DU returned from the West Coast and is handling the Beaver Net while WY sojourns in Florida for a well-earned rest. BMG is working on 144 Mc. net between Trenton, Windsor, and Goderich. ATR sports new masts. The Mohawk Radio Club in Hamilton enjoys a steady growth. BVR has gone high power. The Red Cross has a high regard for the Frontier Radio Association in Windsor, which handled traffic during the S.E.T. in fine style. New calls in St. Thomas are BHU and BZE. Welcome to our midst. The Screw-Ball Net on 28 Mc. is heard nightly. Nice reports were received from Ontario 'Phone, A.F.A.R.S., and Beaver Nets. QON has been badly handicapped the entire month with skip. South American 'phones, and hush. The Southwestern Ontario boys had a pleasant time at the Oakville dinner. CJ kept in touch with home from north country during a hunting trip via AYW, KM, and TG. YR is QRT garden and now has time for radio. Traffic: (Oct.) VE3IA 236, ATR 181, WY 169, BUR 167, KM 85, HP 72, RL 67, DU 61, GI 57, AYW 50, BL 45, CP 44, BTQ 34, BMG 33, BVR 32, NI 26, WK 23, YJ 22, PH 21, RU 19, BUY 12, DBJ 11, HK 7, DD 6. (Sept.) VESBVR 53, BL 19.

QUEBEC DIVISION

QUEBEC—SCM, Gordon A. Lynn, VE2GL—New appointments: LO as RM, HC as EC of City of Montreal and District Mobile, RA as EC of Saguenay District. Les Amateurs de la T.S.F. of Montreal elected new officers with AG as president and AHM as vice-president. The St. Maurice Valley Amateur Radio Assn. elected VE as president. On Oct. 29th RC, AG, KB, NQ, ACR, AHM, ADG, AAL, and others held a mobile exercise on 3.8 Mc. EC now is spending about 80 per cent of his time experimenting and is not often heard. AFU again is active on 144 Mc. ACD spends most of his time on 3.8-Mc. 'phone. CG sends greetings to the gang from Cubal CA reports schedules with the Far North are decreased now with schedules thrice weekly, with VESSF being the only regular. PQN got away to a good start, but better representation from other parts of the Province are needed and you are invited to report in on 3570 kc. at 7 P.M. ZF is trying to get the bugs out of a pair of 814s, clamp tube modulated. XB has TA12 working FB on 3.8-Mc. 'phone now and holds down a spot with AFARS, as does MG, MP, at Farnham, is on 3.8-Mc. 'phone now. FP, at Dore Lake, isolated in the Chibougamau Area, is on 3.8-Mc. 'phone and the boys around there appreciate contacts with the outside. AME is a new ham in Drummondville. UR has been transferred to Goose Bay and will be heard as a VO6 soon. We were all shocked to learn of the sudden passing of HE on Oct. 31st. Traffic: (Oct.) VE2XR 38, GL 27, LO 26, CA 22, CD 21, AKJ 17, EC 10. (Sept.) VE2CA 56.

VANALTA DIVISION

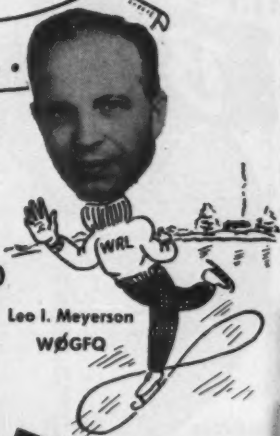
ALBERTA—SCM, Sydney T. Jones, VE6MJ—EO has rebuilt the rig using B.&W. coils and is trying out new mikes. IK and NA are carrying on with their OBB schedules. Listen for them. OE is heard regularly on 3.8-Mc. 'phone with a good signal. XG is a new call in Jasper, and reports ham radio scored again in the search for a missing child in the Lake Edith Area. MJ finally has three-element beam in operation. HM and LZ made good in recent Frequency Measuring Test. HI and NS are interested in taking part in 7-Mc. AEC net. DR is trying to stimulate interest in single sideband. Your SCM would appreciate hearing from all 7-Mc. c.w. operators interested in the formation of a net on the band for AEC purposes. XY is active again on 14 Mc. DZ has rebuilt his rig and keeps 28 Mc. hot. EH, EA,

(Continued on page 88)

Start The NEW YEAR Right...

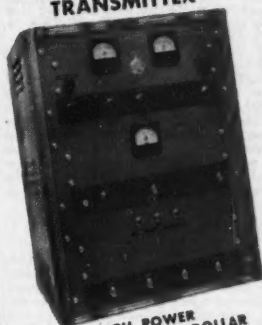
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and WS directed traffic in a recent parade and appear to be working out well with their mobiles. KA is anticipating mobile operation from a new car. YN works his brother regularly. HI passed his 'phone exam successfully. RU expects to hear from his XYL now visiting in England. Traffic: VE6MJ 6.

BRITISH COLUMBIA — SCM, Ernest Savage, VE7FB — British Columbia was alerted from Oct. 11th to 13th for Operation Mercy, simulated disasters called by the Red Cross. Your SEC and I wish to say thanks for the swell job done by amateur radio operators in the disaster areas. Even in the places that didn't have amateurs the SWLs did a good receiving job on blind traffic. During the Simulated Emergency Test held by ARRL that week and the Vancouver Club was out at Little Mt. Park working from batteries, and had its own real emergency. JU was cutting tent pegs and mistook his leg for one. YI is coming into civilization for the winter. ZF lost his sticks in the high wind and hopes for a tower now. ANX is leaving 28 for 7 Mc. hoping for new DX. OJ and AIH are studying Spanish at night school. MH is back on 14 Mc. after a long rest. ARE and AOS are new calls at Collingwood A.R.C. YR and ABP have new QTHs. DH spent time in the hospital; he claims he absorbed too much r.f. working on the rig. SW is increasing power to 90 watts. The Collingwood Club meets at WC's the second and fourth Thursdays. The Vancouver Club meets at QV's the first and third Fridays. BY and SF are both using the new clapper modulation. Our Knobby still reports on the air with a new style of modulation. It has been rumored that US is cooking up a new rig for himself. Traffic: VE7XA 76, AOQ 49, YI 34, FB 10, ZF 4.

YUKON — SCM, W. R. Williamson, VESAK — AO has a new car. CA has sold his TBS-50 and is rebuilding to 812. CI has moved to new QTH in the mountains. CZ has sold the big rig and is on c.w. with HT-18. BC has left the north and should be heard with a VE7 call soon. BG is heard with 6 watts on 3.8 Mc. BN really is rolling using TBS-50 to drive a pair of 812s. HV is using single 812 and getting around on 3.8 and 14 Mc. AL doesn't think operating from a closet would work. AK has a new car and "hi-fi fono" to keep him off the air. Please send in your news to reach me by the first of the month, gang, and I'll see that it is included in this column. Traffic: VE8HV 4, CZ 2.

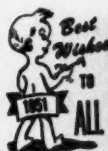
PRAIRIE DIVISION

MANITOBA — SCM, A. W. Morley, VE4AM — PAM: FA. The section wishes Mr. Gray, our congenial Radio Inspector, the best of luck in his well-earned retirement. While Mr. Gray was never active on the air he was the guiding hand behind many amateurs and helped us over numerous difficulties. DE is a new call in St. Lazare. CC and AK are new at Steinbach. AK runs 35 watts and uses a surplus receiver on 3.5 and 7 Mc. ND has new Collins job. JQ is a new call at Erikson. CE is back on after the flood. SH made his yearly visit on 3.5 and is back on 14 Mc. EX-GA now is signing RA. QI is trying controlled carrier. GK is talking s.a.b. LC has new 14-Mc. beam up. 8PM is working 74 at Swan River. KF has sold out and gone to VE7-Land because of his health. A speedy recovery, Frank, and we hope to hear you on from the Coast. The phone net is going great guns on 3760 kc. and traffic shows a big increase. I want to wish you all the best in the New Year, fellows, and with your help we can put this section out front. How about it? Traffic: VE4AM 190, FA 48, HG 42, DQ 24, GV 24, HA 10, LF 10, GB 6, QD 4, BD 3, NR 3, FE 2.

SASKATCHEWAN — SCM, J. H. Goodridge, VE5DW — The highlight of the month of October was the election of various officers. HR was elected by acclamation to the office of SCM, his term commencing Dec. 15th. The following clubs report election of officers: NSARC, PA, pres.; BV, 1st vice-pres.; HI, 2nd vice-pres.; MQ, secy. SARC, OB, pres.; JC, vice-pres.; MC, secy. RARC, LW, pres.; JW, vice-pres.; TO, secy. JK is mobile on 430 Mc. and hopes to schedule NC in Moose Jaw on 144 Mc. HR reports TLI is functioning FB so far this season and that the section c.w. net is meeting with fair success, but more stations are invited to call in. BH is chief NCS. DP and RB join the ranks of the benedicts. RB's XYL comes from England. The NSARC held its annual banquet Oct. 15th with 22 in attendance. DW is on 3.8-Mc. 'phone occasionally. JI is taking down 28-Mc. quad and putting up three-element beam. Traffic: VE5BH 62, JI 34, EE 4.

Strays

In our account of the 1BCG monument dedication ceremonies, December QST, we inadvertently described the Paragon RA-10 as a "regenerative tuner." Old-timers will recall that the RA-10 was the radio-frequency section for a superheterodyne receiver.



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73, Bil Harrison, W2AVA



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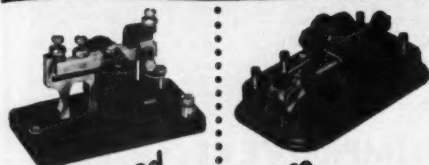
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A New Adventure

(Continued from page #1)

signal pounding in. It was Harry, W3KBS, over in Eddystone, which is about two miles away from the Crozer campus. I gave him a call but without any success. I consulted the telephone book and found him listed there. He said he would be glad to take a listen for me. I called and called, but Harry never heard me. I buzzed him on the telephone again and thanked him.

Scratching my head, I wondered why I couldn't be heard a mile or so away when I was so loud at a point about a tenth of a mile away. I fussed with the antenna coupling, replaced a few tubes, and after a couple of days had nerve enough to ask Harry to take another listen. He obliged. I was R5 S8 in Eddystone, quality good, but modulation low. Later I discovered that my crystal mike had gone whacky. A substitute mike made a great improvement.

Having reached out as far as Eddystone, I ventured to answer a few stations who were calling CQ. Half in doubt, yet enthusiastically hopeful, I called away.

**I GET A
STEREOTYPED
REPLY**



Some of them came back! New Jersey, Connecticut and New York were worked that evening; Maryland was worked the next day. Reports were excellent: an occasional R5 S7/9, a rare S9. A score or so stations were worked in these states. I guess I was running about one watt to a 35L6, modulating with another 35L6. The power supply used a 35Z6 in the rectifier-filter arrangement commonly found in a.c.-d.c. sets.

But the fun really began when I decided to go "high power"! By removing the plate and screen voltages from the 12SJ7 speech amplifier and the modulator, I reduced the load on the power supply and thus permitted a greater input to the crystal oscillator. Using a couple of old tubes, I cut most of the pins off the tube base leaving only the filament pins. I tried using a 50L6 in the oscillator, and thought it perked better than the 35L6. The proper filament voltages were obtained by inserting these "pinless" tubes in the place of the modulator and speech tubes. I suppose I was running all of two watts by this time.

I had lots of fun playing around on 80 c.w. before deciding to try 40 for a little "DX." Piecing together some 300-ohm line, I made a folded dipole for 40. It worked! In just a few hours of operating I QSO-ed as far south as Florida, as far north as Canada, and as far west as Iowa.

(Continued on page #6)



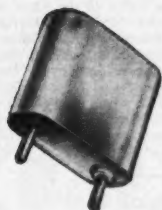
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The James Knights Company

SANDWICH, ILLINOIS

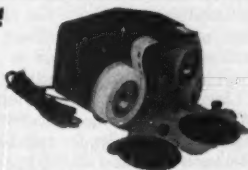
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U. S. A.

Housed in Aluminum Case. Black Instrument Finished. Small—Compact—Quiet Induction type motor, 110 Volts—60 Cycle A.C. Adjustable speed control, maintains constant speed at any Setting. Complete with ten rolls of double perforated tape. A wide variety of other practice tapes available at 50c per roll.

GARDINER & COMPANY
STRATFORD NEW JERSEY



CALL LETTER PLATES

Type A-18 -
For Your Car

W8ENH

A large, sturdy cast aluminum plate with satin-finished letters and border against a black baked enamel background. Red, green, blue and gray -- 50c extra. Size - 2 1/4" x 8 1/2" with 1 1/2" letters.

Type A-19 -
For Panel
Mounting

\$3.20 POSTPAID

LAPEL BUTTONS

An attractive metal button with highly polished raised letters against a black background. Other colors 50c extra.

W9HKZ

ACTUAL SIZE **\$1.10 POSTPAID**

Type A-26L With Screw Backing
Type A-26P With Pin Backing

SREPCO

STANDARD RADIO & ELECTRONIC PRODUCTS

CASH WITH ORDER

CODE WIRES Quickly!

E-Z CODE IT



Colored wire shortage? Identification problem? Here's the answer. E-Z Code it!! Thousands of Combinations. Waterproof. Tough. Permanent. All Colors. Very inexpensive. Remove numbered strip. Secure around end of wire—job's done. Try E-Z Code today!

WRITE TODAY for E-Z Code samples

E-Z CODE

ROCKET DISTRIBUTORS, INC.

205-14 41st Ave., Bayville, L. I., New York
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MICROWAVE TEST EQUIPMENT WANTED

• We can now pay the highest possible prices for good clean microwave test gear. We can also use certain plumbing, thermistors and bolometer elements, as well as specialized cavities and VHF gear.

WESTON LABORATORIES

Weston 93

Massachusetts



RECEIVING SENDING
CODESPEED *without strain*

CHAMPIONS ENDORSE CANDLER WAY

Get skill, accuracy, speed with the highly endorsed Candler System. Learn to send and receive by telegraph or radio code. Government service and commerce need thousands of better trained operators. Air commerce, mail, freight, etc., demand expert, reliable operators. Good pay. Get the Candler System, the maker of champions. It teaches you the "knack" of sound sense, alertness, speedy sending and receiving without strain. Adventure — good pay. Learn at home or wherever you are. Rush name today for free book.

FREE!

CANDLER SYSTEM CO.

Dept. 4-A, Box 928, Denver 1, Colorado, U.S.A.
and at 121 Kingsway, London, W. C. 2, England

There is only one objection to using flea power. When I say I am running about two watts to a 50L6 (or 35L6, whichever I happen to have in the socket) I always get a stereotyped reply. I know what is coming next as well as I know flea power gets out.

"OM," they say, "UR 2 WATTS CERTAINLY DOING A GUD JOB — A FB SIG. IT ALL GOES TO SHOW WHAT QRP WILL DO. . . ."

If you want a new adventure in ham radio, try low power. I continue to be amazed when stations come back to me, and more amazing is the fact that low power seems to yield as much enjoyment as does several hundred watts.

U.S.N.R.

(Continued from page 28)

Captain R. R. Hay, USN, Naval Reserve liaison officer, Division of Naval Communications, Office of the Chief of Naval Operations, and Cmdr. Stephen J. Hopkins, USNR (W4LCW), District Reserve Electronics Program officer, visited the following Fifth Naval District activities during November 1950: Naval Reserve Training Centers at Norfolk, Portsmouth and Fishersville, Va.; Naval Reserve Electronics Facilities at Bluefield and Princeton, W. Va., Norfolk, Charlottesville and Danville, Va., Naval Reserve Electronics Station at Fredericksburg, Va.; and NROTC Unit at the University of Virginia.

Test Oscillator

(Continued from page 31)

lator is connected to the antenna terminals through a shielded cable. R_{13} is set at maximum and the main tuning dial five degrees from minimum capacity. With the receiver set at exactly 1000 kc. and the b.f.o. in the "on" position, adjust trimmer C_4 until zero beat is reached. The oscillator will be on 500 kc. if beats are observed only at 1000 kc. and 1500 kc. It may be necessary to try a few settings of C_4 before the right one is found. No other preliminary adjustments are necessary, and the oscillator is now ready for calibration.

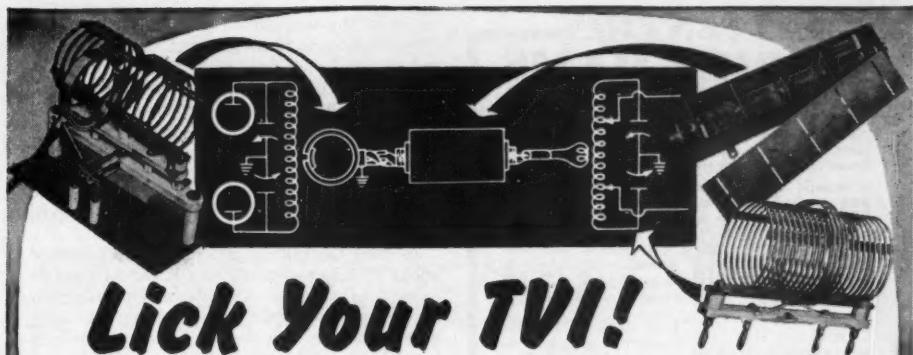
Up to 5000 cycles, covered by ranges C and D, the oscilloscope and the WWV standard audio signal are used for calibrating. Pages 488-489 of the ARRL Handbook and a recent article² in QST give information on audio-frequency calibration by the 'scope method. Assuming that 60 cycles from the power line and WWV's 440- and 600-cycle tones are the standard signals available, it is feasible to calibrate the ranges up to 6000 cycles using the 'scope. The 4000-cycle tone mentioned in the Handbook is no longer transmitted by WWV, and because of this, calibration by Lissajous figures is restricted to about 60 to 6000 cycles; above the latter frequency, the patterns are too complex for rapid analysis.

Between 6000 and 10,000 cycles, calibration is somewhat of a problem. About the only feasible method is to obtain the points from a regular calibrated audio oscillator.

As mentioned earlier, a calibrated receiver is used to spot points from 10 kc. to 500 kc. The full

(Continued on page 38)

² Smith, "An RC-Type Audio Signal Generator," QST, Jan., 1950.



Lick Your TVI!

Most cases of TVI caused by harmonics and spurious radiations can be reduced to a negligible minimum.

In planning a new rig, the best bet, of course, is to use precision-made B&W components—from oscillator to final including antenna coupler. Filtering and shielding recommendations in our "Filter Facts" booklet show what to do, how to do it.

Should your present rig be

of fairly good design, a few minor changes as outlined in "Filter Facts" plus installation of B&W low-pass filters and Faraday shielded links will effectively throttle TVI. Many hams have proved it!

Send 15c today for a copy of "Filter Facts" giving details on how to lick your TVI and get silent rigs back on the air!

B&W Low-pass Filters, Models 52, 75 and 300 Amateur net \$27.00.

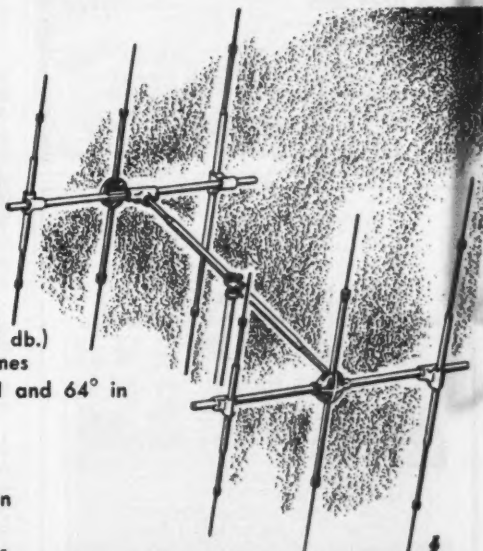
B&W

BARKER & WILLIAMSON, Inc.

237 Fairfield Ave.

Upper Darby, Pa.

6-ELEMENT 10-METER ARRAY



Very high gain (conservatively rated at 7.6 db.) effectively multiplies transmitter power 6 times
Highly directional pattern—68° in vertical and 64° in horizontal planes

High front/side and front/back ratios

Matches 52 ohm coax

Lightweight, durable, commercial construction

Mounts on any standard 1½" pipe

Ask for **WORKSHOP Model 29X**

THE **WORKSHOP ASSOCIATES, Inc.**

Specialists in High-Frequency Antennas

115 CRESCENT ROAD, NEEDHAM HEIGHTS 93, MASSACHUSETTS



ATTENTION MOBILE HAMS

Complete mobile package — nothing else to buy. Outstanding mobile signals use Motorola equipment — backed by years of communication equipment experience — World's largest producer of 2-way mobile equipment.

A mobile transmitter with a double feature FM or AM at flip of the switch, the MOTOROLA FMT-30-DMS (27-30 MC.). **\$130.00**

P-7253 spring base rear — mount antenna **\$22.50**

New Gon-set Tri-Band Spread Converter... **\$47.60**

MOTOROLA P-69-13 or 18-ARS receiver with special noise limiter for use with any converter having 1440-3000 KC. **\$60.00**

3-30 famous Gon-set converter complete to connect to the P-69-13 or 18-ARS receiver. **\$39.95**

P-327-E Fire wall loud speaker.... **\$5.00**

The above comes complete with all necessary accessories and mounting hardware. Order direct or through the Motorola National Service Organization member in your area.

NOTE: This Receiver and Transmitter is equipment which has been returned from the field, modified and rebuilt for Amateur Service.

For further information write to:

MOTOROLA INC.

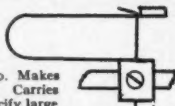
Amateur Sales Dept. QST — January

1327 W. Washington Blvd. Chicago 7, Illinois

Attention: Harry Harrison, W9LLX, Tel. Taylor 9-2200 Ext. 161

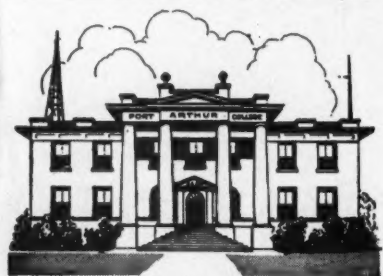
PUT MORE SOCK IN YOUR BUG with DOT STABILIZER

No split dots. No sticking up. Makes heavy contact every time. Carries through like hand sending. Specify large or medium size contact.



Complete unit \$3.00 Postpaid

TELEPLEX CO., 894 East Dawn Drive, Modesto, Calif.



Founded in 1909 RADIO TELEPHONY RADIO TELEGRAPHY RADAR & LORAN

Courses ranging in length from 7 to 12 months. Dormitory room and board on campus for \$40.00 a month. The college owns KPAC, 5 KW broadcast station with studios located on campus. New students accepted monthly. If interested in radio training necessary to pass F.C.C. examinations for first-class telephone and second-class telegraph licenses, write for details.

PORT ARTHUR COLLEGE PORT ARTHUR TEXAS

Approved for G. I. training

output of the oscillator on range C is fed into the receiver antenna terminals, and the tuning control should be adjusted until the signals fall at every 10-kc. point through the broadcast band. At this setting the oscillator frequency will be 10 kc. Considerable care, and several attempts, will undoubtedly be necessary before the correct setting is reached. The harmonic method can be used for calibrating up to 500 kc. The procedure is similar (although the frequencies differ) to that described in the *Handbook*.

In using the instrument, a warm-up period of about 20 minutes should be allowed for the frequency to stabilize. At both audio and radio frequencies the stability has been found to compare favorably with that of commercially-built laboratory oscillators. It is amply stable, for example, for aligning a 456-kc. i.f. amplifier. At the setting of R_2 that gives good waveform, the output with R_{18} at maximum is approximately 10 volts r.m.s. The attenuator gives smooth control over the entire range, being readily adjustable to outputs in the microvolt region even at 500 kc.

V.H.F.: Why — How — When?

(Continued from page 41)

ground is often important, particularly where near-by buildings, trees or hills cut off the view in the directions we wish to work. Antennas should be rotatable if at all possible. Except for very limited point-to-point work, a convenient method for rotating the antenna is important.

In designing the antenna system we must bear in mind that gain is obtained only by sharpening the directive pattern of the antenna system. We should try to keep the horizontal pattern reasonably broad, to make it unnecessary to rotate the array for every signal, however slight the difference in bearing. We want the lowest possible radiation angle, so we should sharpen the pattern in the vertical plane first. An array four elements high and two wide will be more tolerant in horizontal directivity than one four wide and two high. Vertical stacking brings the desired gain without much increase in aiming difficulties.

Frequency response may be important, too. Arrays with large numbers of driven elements may be little more selective than a single driven element, but when the gain is developed through parasitic elements (particularly directors) the selectivity of the system may be considerable.

The question of horizontal or vertical polarization has come in for much discussion in recent years. Though early work was done almost entirely with vertical antennas, the trend is toward horizontal polarization. On 50 Mc. this amounts to standardization, but both vertical and horizontal are used on all higher bands. Inquire locally to see which is in use, and go along with the majority. Matching the polarization in use at the station you wish to work will ordinarily produce better signals than cross polarization.

[EDITOR'S NOTE: Part II of this article will appear in a subsequent issue.]

IDEAL FOR HAMS

March 25, 1950

I am sending in my Model VT-73 Microphone for repairs. It is over 12 years old and has given perfect service up until recently. It has been dropped on a concrete floor, exposed to all sorts of heat, dampness, dust, and cold without apparently affecting its performance . . . this proves that Turner Mikes are built to take it.

I hope you continue to make the Model VT-73 as it is ideal for ham and all sorts of communications work where reproduction at the speech frequencies is the prime factor . . .

Sincerely,
M. T. Donnell Jr.
WSHSE



CRYSTAL

Complete with ball swivel head, stand, and 7-ft. attached cable. List . . . \$21.50

Ask your dealer

Write for complete microphone literature

THE TURNER COMPANY

917 17th Street, N. E.

Cedar Rapids, Iowa

Microphones by **TURNER**

Crystals licensed under patents of the Brush Development Company.

BROAD BAND TEN METER CONVERTERS . . \$16

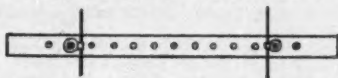
(postpaid)

These RF24 three tube units really perform. Pops up your set immeasurably, especially such models as the BC-348, BC-342, etc. Actually covers 30-30 Mc.—output 7.5 Mc.—measures 3 x 7 x 10 1/2. Spare tubes, coax fittings and instructions furnished. Needs no alteration to perform. Requires 200-250 V. 18 Ma + 6.3V at 2 amp. Used but guaranteed to work.

THE OVERBROOK COMPANY
OVERBROOK 81, MASS.

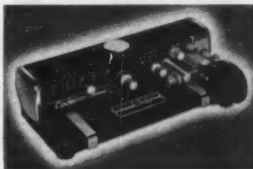
JACOBS ADJUSTABLE SEPARATOR

U. S. Patent No. 1,950,170 — March 6, 1934 — others pending



Made of Lucite for the rapid and efficient construction of open 2-wire R. F. feedlines. Provision is made to give spacings from 3/4" to 6". Price: \$5.00 per dozen.

CHARLES F. JACOBS
P. O. Box 408, Church St. Station
New York 8, N. Y.



Codetrol

A NEW STANDARD FOR SEMI-AUTOMATIC CODE \$22.50

BERNARD H. BREEDLOVE
299 Marietta Street N. W.

Here is a key engineered for CW. Beautifully machined and finished, the Codetrol has the feel you've been looking for. You know it's right with the first dot. No whip, no lag, no crawl. Clean signals, sharp cutoff. Stabilized double-pivoted suspension with silky smooth Flywheel Action without run-away sensitivity. Don't be a slave to your key.

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for news of all that's NEW in the lab, plant and station involving design, manufacture, operation and maintenance of TV equipment for research, production, testing, receiving and transmitting.

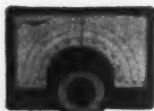
Special Rate: 3 yrs. (36 issues) \$5

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52 Vanderbilt Ave., New York 17, N. Y.

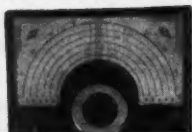


NATIONAL

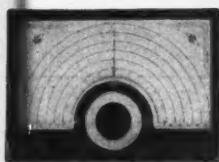
- **P**roven
- **D**ependable
- **Q**uality



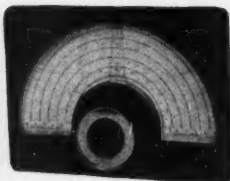
MCN



SCN



ACN



ICN

POPULAR NATIONAL DIALS

ACN — the original design so popular with manufacturers, amateurs and experimenters who "build their own" and desire direct calibration, 5" H. x 7 1/4" W. \$3.30 net. ICN — an illuminated version of the ACN, 5 1/8" H. x 7 1/4" W. \$6.00 net. SCN — same dial scales as ACN in reduced size, 4 7/16" H. x 6 1/4" W. \$3.00 net. MCN — scaled down dial, ideal for mobile installations and small converters, 2 3/4" H. x 3 3/8" W. \$2.70 net.

50 Mc.

(Continued from page 44)

ponents or receivers merely by changing the oscillator tuning range. Adjustment of the oscillator inductance, L_2 , can be made by sliding it along the stator bars of the tuning condenser, C_1 .

The outer conductor of the coaxial line is a piece of 1-inch pipe, one end of which is fitted with a knurled cap. This cap acts as the cold side of a variable tuning capacitor, the other plate being a disc soldered to the end of the inner conductor. This arrangement has several advantages: no dielectric material is added by the tuning device, and the tuned circuit is completely shielded.

Coupling to the antenna is by means of a 1-inch-wide loop of wire fed through holes in the outer conductor. If coaxial line is used for feeding the antenna system the coupling may be by a tap directly on the inner conductor.

A.R.R.L. QSL BUREAU

The function of the ARRL QSL Bureau system is to facilitate delivery to amateurs in the United States, its possessions, and Canada of those QSL cards which arrive from amateur stations in other parts of the world. Its operation is made possible by volunteer managers in each W, K and VE call area. All you have to do is send your QSL manager (see list below) a stamped self-addressed envelope which is about 4 1/4 by 9 1/2 inches in size, with your name and address in the usual place on the front of the envelope and your call printed in capital letters in the upper left-hand corner.

W and VE stations should not send cards for other W and VE stations through the QSL Bureau; they cannot be accepted. Likewise, cards for foreign stations should be sent only through the foreign bureaus. For a list of these overseas QSL bureaus, see page 48, December, 1950, QST.

W1, K1 — Frederick W. Reynolds, W1JNX, 112 Commonwealth Ave., Dedham, Mass.

W2, K2 — H. W. Yahnel, W2SN, Lake Ave., Helmetta, N. J.

W3, K3 — Jesse Bieberman, W3KT, Box 34, Philadelphia 5, Penna.

W4, K4 — Johnny Dortch, W4DDF, 1611 East Cahal Ave., Nashville, Tenn.

W5, K5 — L. W. May, Jr., W5AJG, 9428 Hobart St., Dallas 18, Texas

W6, K6 — Horace R. Greer, W6TI, 414 Fairmount St., Oakland, Calif.

W7, K7 — Mary Ann Tatro, W7FWR, 513 N. Central, Olympia, Wash.

W8, K8 — Walter Musgrave, W8NGW, 1294 East 188th, Cleveland 10, Ohio

W9, K9 — John F. Schneider, W9CFT, 311 W. Ross Ave., Wausau, Wisc.

W8, K8 — Alva A. Smith, W8DMA, 238 East Main St., Caledonia, Minn.

VE1 — L. J. Fader, VE1FQ, 125 Henry St., Halifax, N. S.

VE2 — Austin A. W. Smith, VE2UW, 6164 Jeanne Mance, Montreal 8, Que.

VE3 — W. Bert Knowles, VE3QB, Lanark, Ont.

VE4 — Len Cuff, VE4LC, 286 Rutland St., St. James, Man.

VE5 — Fred Ward, VE5OP, 899 Connaught Ave., Moose Jaw, Sask.

VE6 — W. R. Savage, VE6EO, 329 15th St., North Lethbridge, Alta.

VE7 — H. R. Hough, VE7HR, 1785 Emerson St., Victoria, B. C.

VE8 — W. R. Williamson, VE8AK, Box 534, Whitehorse, Y. T.

KP4 — E. W. Mayer, KP4KD, Box 1061, San Juan, P. R.

KZ5 — C. Z. A. R. A., Box 407, Balboa, Canal Zone

KH6 — Andy H. Fuchikami, KH6BA, 2543 Namana Dr., Honolulu, T. H.

KL7 — Box 73, Douglas, Alaska

SWITCH TO SAFETY!



NATIONAL COMPANY, Inc.
MADE IN MASSACHUSETTS

Astatic's Synabar Model DR-10 Unidirectional Cardioid Crystal Microphone

ASTATIC's Synabar Microphone uses a special sintered metal to cancel out 15 db front to back, making it, for practical purposes, dead to sound from the rear. Excellent frequency range, from 50 to 10,000 c.p.s., is further enhanced by a Response Selector switch, which provides choice of ideal pick-up characteristics for either crisp voice or general voice and music. The Synabar's crystal element has a special METALSEAL protection against moisture or dryness. A high impedance microphone, it has an output level of -54 db. It has a satin chrome finish, is furnished with detachable cable connector and 20 feet of single conductor shielded cable, and is available in models with or without off-on switch.

DR-10List Price \$37.25

DR-10-S*List Price 39.95

*With off-on switch

Astatic Crystal Devices
Manufactured Under Brush
Development Co. Patents

THE
Astatic
CORPORATION
CONNEAUT, OHIO
IN CANADA: CANADIAN ASTATIC LTD., TORONTO, ONTARIO

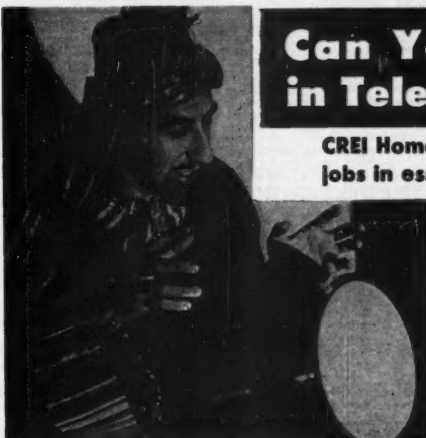


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**CREI Home Study qualifies you for better paying
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"Technicians may soon be as scarce as certain lubes," says an informed industry spokesman as growing military demands cut sharply into available skilled personnel. Now is certainly the time to get into electronics! In this essential industry you're assured—if qualified—of a lifetime career. And if you're headed for the Armed Services, your technical electronics ability will set you apart from the crowd—put you in line for supervisory work at extra pay in vital radar, navigation, or communications units.

CREI's practical home study training is recognized by industry and the military as outstanding. It starts with basic principles and goes step-by-step through advanced TV, communications, and industrial techniques. For detailed proof, send for booklet. It can lead to promotion, more money, and a lifetime career. Act now!



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HAM-ADS

(1) Advertising shall pertain to radio and shall be of nature of interest to radio amateurs or experimenters in their pursuit of the art.

(2) No display of any character will be accepted, nor can any special typographical arrangement, such as all or part capital letters be used which would tend to make one advertisement stand out from the others.

(3) The Ham-Ad rate is 30¢ per word, except as noted in paragraph (4) below.

(4) Remittance in full must accompany copy. No cash or contract discount or agency commission will be allowed.

(5) Closing date for Ham-Ads is the 25th of the second month preceding publication date.

(6) A special rate of 7¢ per word will apply to advertising which, in our judgment, is obviously non-commercial in nature and is placed and signed by a member of the American Radio Relay League. Thus, advertising of bona fide surplus equipment owned, used and for sale by an individual or apparatus offered for exchange or advertising inquiring for special equipment, if by a member of the American Radio Relay League takes the 7¢ rate. An attempt to deal in apparatus in quantity for profit, even if by an individual, is commercial and all advertising by him takes the 30¢ rate. Provisions of paragraphs (1), (2) and (3), apply to all advertising in this column regardless of which rate may apply.

(7) Because error is more easily avoided, it is requested signature and address be printed plainly.

(8) No advertiser may use more than 100 words in one issue nor more than one ad in one issue.

Having made no investigation of the advertisers in the classified columns, the publishers of QST are unable to touch for their integrity or for the grade or character of the products or services advertised.

Please note the 7¢ rate on ham-ads is available to ARRL members only.

QUARTZ—Direct Importers from Brazil of best quality pure quartz suitable for making piezo-electric crystals. Diamond Drill Carbon Co., 719 World Bldg., New York City.

QSLs, 100, \$1.50 up. Stamp for samples. Griffith, WJFSW, 1042 Pine Heights Ave., Baltimore 29, Md.

SUBSCRIPTIONS, Radio publications a specialty. Earl Mead, Huntley, Montana, W7LCM.

QSL's high quality, fair prices. Samples? W7GPP, R. D. Dawson, 1308 F. Street, The Dalles, Oregon.

CRYSTALS: Bassett, Type 100A precision low-drift units made to your exact specified frequency within the 80 or 40 or 20 amateur bands, at \$1.50 each, plus postage. Rex Bassett, Inc., Bassett Building, Ft. Lauderdale, Fla.

QSL's. Have you seen them yet? Samples today. Your best bet: Larry's QSLs Opportunity, Washington, P. O. Box 59.

QSL's. Very attractive. Best in printing and prices. Kromeoket or any other stocks. Stamp for samples. WALXJ, Roop, Radford, Va.

MOTOROLA dispatchers, new, \$350.00. Used: \$250.00. W5BCO, Hicks, 204 E. Fairview, Tulsa, Okla.

WANTED: Marconi coherent magnetic detector. Multiple tuner; DeForest responder and other gear prior to 1920. Franklin Wingard, Rock Island, Ill.

QSL's Taprint, Sumrall, Mississippi.

WOULD like to get in touch with anyone with Call Books earlier than 1921. W6AD, Box 793, Rome, Ga.

QSL's, SWL's, Meade, W0KXL, 1507 Central Avenue, Kansas City, Kansas.

CALL Letters painted on ties, color? \$2.50. T-shirts. Size? \$1.75. W. F. Yates, W9LIQ, Box 347, Heyworth, Ill.

WANTED: Complete or nearly complete files of Eastern, Western, and Southern Editions of QST. These contain only the particular regional Operating Department Reports, down to late 1942, and omit reports from other areas. Begin with January, 1935 issue, and end with December, 1942, both inclusive. Must have both covers and be in good condition. Sumner B. Young, W6CO, Route 3, Wayzata, Minn.

QSL's, modern. Sample booklet 12¢. Stamps okay. Westerners see samples at leading Ham stores. W6GFV, van Groos, 1436 N. Serrano, Hollywood 27, California.

ESTATE WCOR. Receivers HQ-120, \$60. RAK-7, \$50. Melaner EX (VFO), \$75.00. BC375 with 4 tuning units, \$25.00. Triplet 2432, \$40. 3413, \$45.00. Silver 904, C/R Bridge \$50. Cummins 1/4" drill \$13.50. Elmac VC/50, \$4.00. K&E "Minus Special" instruments, \$7.50. Books, misc. other items. Stamp for list. Marjorie M. Geddes 4626 Western Ave., Washington 16, D. C.

ZIPPO lighter. ARRL insignia and call sign, inlaid enamel, \$5.00. Ideal birthday gift. McCarron, W2BN0, 384 E. 193rd St., New York, N. Y.

CANADIANS: 40 designs, photos, cartoons and conventional QSL cards. Showing of type faces to aid in designing your own card. 10¢ (refunded with order) brings yours. W. John Chivers, Drawer 38, Grimsby, Ontario.

QSL's, distinctive samples. Noble Press, Chatham, Mass.

CONVENTION ARRL National Convention in Seattle, July 27, 28, 29th, 1951. Plan your vacation in the Great Northwest during Seattle Centennial year. The time of your life! General Chairman: WRTT, 1921 Atlantic St., Seattle 44, Wash.

PHONE patch schematics, practical discussion. \$1.00. Nichols, W1MRK.

QSL's SWL's? "America's Finest!" Largest variety. Samples, 10¢. QSL printer Sakkers, W8DED, Holland, Michigan.

WANTED: APR-4 receiver and tuning units. State condition and price. W2DB, 274 Boulevard, Scarsdale, N. Y.

NEW crystals for all commercial services at economical prices, also regrounding or replacement crystals for Motorola, Link, G-E and other commercial types. Over fifteen years of satisfaction and fast service! Eldon Electronic Co., Phone 3501, 1802 No. Third St., P. O. Box 31, Temple, Texas.

BEAMS and antenna elements. Send a card for full information. Riverside Tool Co., Box 87, Riverside, Illinois.

FOR Sale: TVI-proof Transmitter, KW, \$550.00. Photo available. W. R. West, Box 2423, Norfolk, Va.

QSL's-SWL's. High quality. Reasonable price. Samples. Bob Teachout, W1FSV, 40 Elm Street, Rutland, Vt.

QSL's: Uncle Fred QSL's. Three colors and up. Rainbow map QSL's. Special DX QSL's. Bargain QSL's. Samples rushed, 10¢. Uncle Fred, Box 86, Lyann, Penna.

FOR Sale: N.C. 37 receiver; Hallicrafters 10" T.V.; all channels T.V.; F.M. booster, like new, sold very reasonable, C. Horn, 325 E. 163rd St., New York 56, N. Y.

SELL or trade: BC-610 Mod. transformer, \$20.00; Stancor 2100 VDC 375 Ma. plate transformer \$30.00; Turner 22D mike, \$10; Atatic D-104 \$7.00; four 810's; two 813's, \$5.00 each; Panadaptor by Panoram Radio, 455 kc. I.F. plus or minus 100 kc. sweep, similar to RBV/BC-1031; new Baush and Lomb 7 x 35 binoculars with case; Wante;—Super Pro BC-794 or BC-1004. Paul Lee, W4RXO, 4 Oak Street, Isle of Palms, So. Carolina.

INSTRUCTOGRAPH, standard model, with Continental code tapes 1 thru 10, used little, with instructions, without oscillator, \$18.00. Edwin T. Wadleigh, W1RTX, Belgrade, Me.

SELL: BC-654 (SCR-284) portable receiver/transmitter, VFO, phone, c.w., crystal calibrated, 3800-5800 kc, 20 watts, good condition, \$18.50. Thomas Howard, W1AFN, 46 Mt. Vernon St., Boston 8, Mass.

FOR Sale: Several ART-13 Collins Autotune transmitters, used, unconverted, in excellent condition. Complete with tubes, xtal and calibration book, but less cable and dynamotor, \$95.00. Several ARCA transmitter-receiver 100-152 Mc. Used but excellent condition, complete with tubes and dynamotor, \$20.00. Both F.O.B. Helena, Mont. W7EAL, Wm. H. Steele, 535 Leslie Ave.

SELL: Receivers: National 81-X, \$50.00; Super Pro XBJ, \$150.00; zmitters: Hallicrafters HT-6, 10, 20, 40, 80 coils: \$100.00; KW complete, home built, rack-mounted, \$300.00; parts worth \$150.00; absorption freq. meter Triplet 3256, \$7.00; oscilloscope 3", Dumont, 146, \$60.00; BC-221 freq. meter, w/book, \$60.00; microphones: Electro-Voice 950; Atatic WR20, \$10.00 each. All equipment is in good condition. Shave shape. Write to W1ZDU, 188 Yaine Ave., Irvington 11, N. J.

SELL: VFO bandswitching. Cost over \$125.00. 20 watts, HRO dial, \$50.00. Lanny Yudel, W2UDW, 1780 East 13th St., Brooklyn, N. Y. ES 5-9547.

SELL: Precision Model 612 tube and battery tested. Built-in roll chart, practically new, \$55.00 postpaid. Carl Wilhide, 1041 Ridge Ave., Sharpville, Penna.

SELL, trade: New BC-375, BC-458, like new BC-459, BC-696, RA-20, BC-223, TG-10, etc. Want: R-9'er, Powerstat, Lambda modulator scope. Write to W5NHIB, 4615 Laurel, Bellairs, Texas.

WANTED: Good condition Collins 32V1 or 32V2 National HRO bandspread coils 40, 20, London Fickel, W6ECX/VF9AG, Hroy Cottage, Snake Road, Warwick, Bermuda

RCA, AVT-15A, 6 volt, 7 1/2 watts, aircraft transmitter, 2500-6700 kc, ideal for 75-meter mobile use, no conversion necessary, ready to go, complete cable and tubes, less crystals, \$50.00; parts worth \$150.00; mobile vibrator power supply, input 6.12 or 24 volts, output 300 volts at 100 Ma. Ideal for auto or boat, 250 volts, 50 Ma, available for receiver operation, also control relays, \$15.00. Navy ML frequency meter, surplus, \$14.50. George W. McCauley, 153 First St., Mineola, L. I., N. Y.

FOR Sale: Eldico TRI 300 watt amplifier, coils for all bands, mounted in steel cabinet, with factory assembled Melaner shifter. Both used less than 25 hours \$250.00 cash F.O.B. William Fautl, Jr., W3QDH, Bradford, Penna. RFD No. 1.

SELL or swap: BC-342N, VHF-152A, LM and BC-221B, Transvision 7", BC-322, GE VGS-3, approved A-40 TV FSM, DCSW-3, grid dipper, 72" Par-Metal, chokes and condensers, 810, 813, 4E27, 100TH, 250TH, TB-35, PP100TH final and modulator, make offer. WIJR, 23 Bennett Road, Gardiner, Mass.

FOR Sale: QSTs from 1938 thru 1942, also 1946, others, very reasonable. Supply for 4D32 rig, Triplet 1696A mod. monitor, speech amplifier, RCA 155-C scope, Stancor ST203A mobile rig, Weston photo-cell micro-rig. Quick sale priced, George Kravitz, 7919 20th Ave., Brooklyn 14, N. Y.

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FOR Sale: HRO-7 complete, \$225.00. Will allow inspection. F.O.B. W4KIC, 111 Hall St., Bainbridge, Ga.

SELL NC-173. Like new. Bargain price W8WV, 1753 Kensington Ave., Youngstown, Ohio.

HALLICRAFTERS S-27. Needs a little work. Swap for 10-meter mobile rig, or what have you. Leon De Laneville, W8RRO, P. O. Box 385, Reserve, La.

NAUTICALLY-minded ham could help Marine Historical Association at Mystic if he had a spare tape recorder. Write C. Cutler, Cutler, Mystic, Conn.

MILLEN 50-watt transmitter No. 90, \$80, \$25.00. National 1-10 with power supply, \$50.00. Both units brand-new condition, complete with all coils, tubes and instruction books. Charles Landsiedel, 192 Spring St., Red Bank, N. J.

FOR Sale: TCS-12, trans/rec, 110 volt A.C.; TCS 8, trans/rec 12 volt A.C.; BC-191 transmitter 12 volt A.C.; BC-342 receiver 24 volt D.C.; BC-221AK modulated freq. meter; LM-15 freq. meter, 110 volt; SOUPS Link trans. rec.; 1498 Link trans. rec. All complete, new, unconverted equipment. A. van Breems, Chrysler Building, N. Y.

FOR Sale: \$250.00. Federal built Mackay 167BV 750 watts c.w., NFM., VFO 2-24 Mc. Variac, built-in. Will not ship. W9LTV, 1506 Summit Dr., West Lafayette, Ind.

WANTED: AN/APR-4 receivers and tuning units; APR-1, APR-5A, ARC-1, ARC-3, R-89/ARN-5A, TS-174/U (and other "TS" and "IE" equipment), APR-5, ARS-7, RBL-3, BC-348, ART-13, radar and other surplus; General Radio, Boonton, Ferris, other top-quality equipment wanted, especially for 100 to 6,000 Mc. region; also 707-B, other special-purpose tubes, maggies, klystrons, iconoscopes; Tech. Manuals. Describe, price in first letter, Littell, Farhills, Box 26, Dayton 9, Ohio.

BOUND QST's. High school radio club will sell volumes, well bound in blue, at \$3.00 per volume. Radio Club, Oak Park River Forest High School, Att: T. Schneller, 212 No. Lombard Ave., Oak Park, Illinois.

BARGAINS new and used transmitters, receivers, parts: Globe-King, \$299.00; HT-9 \$225.00; Temco 75GA, \$250.00; Collins 75A1, \$295.00; new 150-watt phone \$199.00; SX-42, \$189.00; NC-173, HQ-129X, \$139.00; SX-43, \$129.00; ART-13, \$119.00; RME-45, \$99.00; SX-25, \$89.00; HT-6, \$85.00; Meck T-70, \$85.00; RME-69, \$69.50; VHF 152A, \$69.00; NC-100, \$59.00; Globe Trotter, \$57.50; New Bud VFO \$39.50; new Melaner signal generators, \$24.95; S-38 \$29.95; 90800 Exciter \$29.50; 3-30 or 10-11 converters \$25.00; S41G \$22.50; XE-10 \$19.95; and many others. Large stock trade-in. Free trial. Terms financed by Leo, W9CFO. Write for catalog and best deal to World Radio Laboratories, 740 W. B'way, Council Bluffs, Iowa.

FOR Sale: BC-348-C, unmodified, \$19.50; SCR-522, unmodified, with test set I-139-A, control box, some spare tubes, operating and maintenance manuals, \$29.50. T. G. Dalby, 419 Groveland Ave., Minneapolis 3, Minn.

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FOR Sale: BC-610 transmitters and 3 element beam for 10 meters. All in excellent condition. Includes extra tubes. 2000 ft. Price \$550.00. R. van Scoyk, Jr., 27 Carlands Dr., Dayton 9, Ohio.

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SWL desires private tutor to teach me code and theory for ham ticket. Prefer local teacher. State terms and if you will guarantee results. Write: Joseph Zakauskas, 2227 Germantown Ave., Philadelphia 33, Penna.

WANTED: Marconigraphs. Marconi code records, Year Book of Wireless Telegraphy 1913-1915; Marconi 106 107 112A and multiple tuners; Marconi magnetic detector; Wireless Specialty IPI and 1914 double-deck tuners; Electrical Experimenters 1913 through 1921; Wireless Age, Oct. 1913 through 1922; Trade old QST's or pay cash. L. Risoli, W1AAT, 100 Bay View, Salem, Mass.

QSLs, SWLS. Not most expensive, not the cheapest, but the best! Fritz, 1213 B'way, Joliet, Illinois.

WANTED: SSR-1-G receiver. State condition and price. W6CLV, 122 43rd St., Sacramento 16, Calif.

FOR Sale: New high power transformers, chokes, condensers, etc. Never used. In original packing. No surplus. If interested in QRO, write for list. Reason: Army duty imminent. W6QDD, Giroud, 12434 Foodhill Blvd., San Fernando, California.

HQ-129X and speaker, \$115.00; Melaner EX signal shifter with NBFM, \$60.00. S. Friedland, Storrs, Conn.

SELL: New, surplus, never used: 4 HK257B beam pentodes, 1 Lewis 257B, \$8.00 each. Kenyon T-478 modulation transformer, 225 watts, primary matches pair 811's to 3500, 5000, 7000 ohms, \$15.00. A. Gorbels, W9NOC, 1207 Wadsworth, North Chicago, Ill.

WANTED: OST's 1941-46, SM40 S Meter, baer good BC-222's. Swap ten 211's for anything useable. W. F. Baer, 1223 Highland Terrace, Richmond Heights 17, Mo.

SELL: Melaner signal shifter w/pwr supply and F.M. modulator. Cost: \$120.00, want \$35.00 plus freight. W3OEK, Eckman, 1208 Romine Ave., McKeesport, Penna.

SELL: Nearly new RME VHF 2-11, dual conversion Superhet with S meter. \$100.00. Nearly new S-72 portable, \$75.00. SX-17, 13 tubes, 340 kilocycles to 61 megacycles. Less speaker, \$60.00. Electro-Voice speech clipper, \$8.00. W9EHP, Robert Rosenquist, 2558 Ida, Omaha, Nebraska.

FOR Sale: Lyco Model 6000 TVI—Less Bandswitching VFO transmitter. Brand new, in factory carton. Cost \$120.00. Best offer. W1GVT, 218 Berlin Ave., Southington, Conn.

AUTOMATIC antenna match. Any spacing line to any load! TV or "ham". Send dime for details. A. L. Munzig, (ex-W6BV), Hawthorne, Calif.

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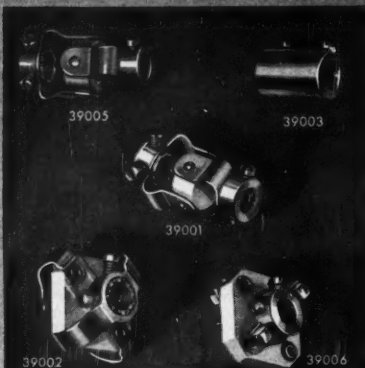
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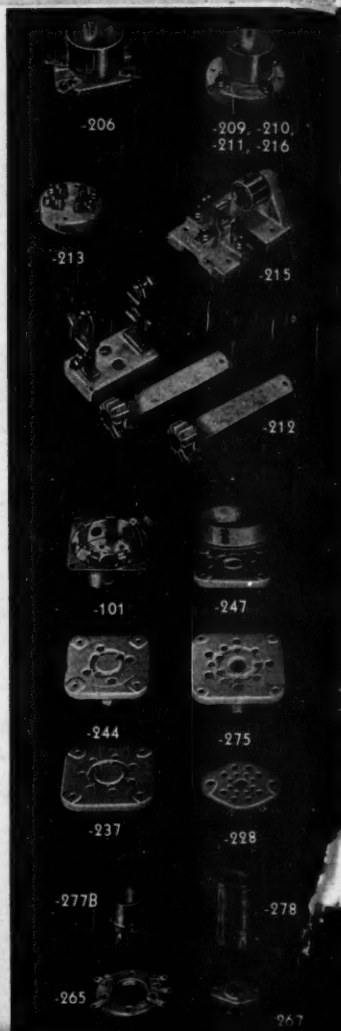
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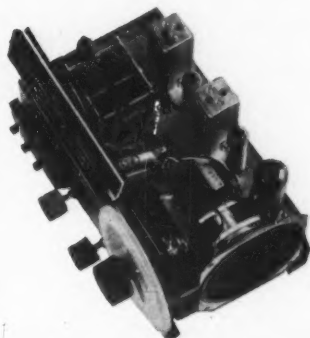
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